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IRON TRADE REVIEW

STEEL

September 18, 1930

SPECIAL

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STEELS

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Vol. 87, No. 12, Sept. 18, 1930, issue of STEEL, published weekly at Cleveland, O. Entered as second class matter at the post office Cleveland, O., under the act of March 3, 1879. Subscription $6 a year in U. S. and Canada; foreign £2:0:0; single copies 25c.

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IRON TRADE REVIEW
STEEL
Published Every Thursday by
PENTON PUBLISHING CO.
PENTON BUILDING, 1213 WEST THIRD ST., CLEVELAND, O.
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PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

Making Disk and Wire Wheels for Passenger Cars and Trucks. Page 47.

THIS WEEK:

WHEN a rural community decides to pave a road one of the items receiving the least consideration is that of bridges and highway guards. The big cost comes in the paving, and it is surprising how many village and county engineers, urged by the demand for economy, will try to "get by" with patching up the foundations of old bridges and superficial repairs to bridge fences and rails. Wooden guards, surviving from the time the roads were unfrequented or used only by horse-drawn vehicles, are deemed sufficient to keep motorcars from going into ditches. The article on page 23 points to a field for steel.

STEEL is published by the Penton Publishing Co., Cleveland, O. Member, Audit Bureau of Circulations; Associated Business Papers Inc., and National Publishers Association

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Paris	9 Rue de Londres
Berlin	Dahlmerstrasse 64 A. Lichterfeld-West

Subscription in the United States, Canada, Cuba and Mexico $6 per year; in Great Britain and European countries £2:0:0.

Entered as second class matter at Post Office at Cleveland under the Act of March 3, 1879.

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Volume 87 Number 12

IRON TRADE REVIEW
STEEL

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

SPRING merges so gently into summer that the midyear recession, both industrially and humanly, creeps up almost unawares, but concerning its termination there is no doubt. Labor Day is an abrupt, strident warning that summer is past and it is time to resume. Already there is a quickening of the nation's pulse. Politics is warming up for the fall elections; more interest is evident in Wall Street; wets and drys are at each other's throats with renewed vigor; international yachting and polo are big news. The remainder of the world has no Labor Day to herald fall activity, but it too is stirring. South America is in revolt; Canada is convening her parliament especially to raise the tariff; Italy is making political faces at France, who in turn stages her most pretentious postwar army maneuvers on the German border; France and England are snapping at each other at Geneva, England's mistrust of Briand's United States of Europe arising partially in the continent's inability to co-operate and make its steel entente a success. Here, surely, is action if not progress; evidence that the world is back at its desk, and interested.

Business Upward in Sawtooth Fashion

Business also is sensitive to the Labor Day summons, although concerning the extent there is disagreement. Mentally, the corner has been turned, and probably a majority believe the course of business the next few months will be charted by a jagged line—a few weeks of progress and then a relapse—but with the trend always mildly upward. A leading figure in the steel industry foresees a mild reaction in two or three weeks as part of this sawtooth course. Steel Founders report (page 26) that their drawing rooms are busier. One of the largest and newest structural mills is breaking production records. Sales of such leading chains as Woolworths and A & P are expanding. Dun's and Bradstreet's reports agree that retail distribution is improved. Steel production on the whole (Page 78) is maintaining the gains of August. The decline in unfilled tonnage of the Steel corporation (Page 32) is not encouraging but explained by heavy production of pipe and tin plate without compensating replacement bookings. Structural inquiry, still large (Page 76). may be reflecting in its large proportion of bridge work some of the impetus supplied by Washington. Steel producers, determined to give no further price concessions, are encouraged (Page 71) by diminished pressure from consumers and efforts by certain automotive interests to make commitments at current levels.

Trend Toward Metal Wheels Stronger

Speaking of the automotive industry, the trend toward metal wheels, especially wire spoke, is of great significance. Last year 15,-

Wide World Photo

British engineers have just completed what they claim is the longest single span bridge, across the Sydney, Australia, harbor. The span is 1650 feet

000,000 wheels of this type were required. At Detroit is one of the largest wheel plants of the country, with a daily capacity of 25,000 disk wheels for trucks and 20,000 disk and 35,000 wire wheels for passenger cars, whose utilization of conveyors is noteworthy (Page 47)... It may well be that workers in this wheel plant are typical of those surveyed in Detroit by the bureau of labor statistics. The deduction is that families with incomes of less than $2000 a year are spending less for food and clothing and more for radios, autos and bathtubs (Page 30) but 87 out of 100 maintain life insurance.

Immigration Restriction More Stringent

Probably because its ratio of idleness is high, labor is now the beneficiary of much attention. The President is ingenious in directing American consuls (Page 30) not to visa the applications of aliens who might become public charges in the United States; for an alien to enter with a job promised would be a violation of the contract labor law. . . . In Milwaukee the local branch of the National Metal Trades association will study employment from the standpoint of the employe as well as the employer, seeking an interchange of data assuring the right man for the right place (Page 30)... That the worst days for railroad shop labor are almost past is indicated by the steady growth in the number of bad-order locomotives and freight cars (Page 32). Normally, the winter months are hard on equipment, and the diminishing surplus of serviceable cars may call shop labor back. . . A chump (blockhead, dolt—Webster) is what Secretary of Labor Davis (Page 26) harshly characterizes the employer who slashes prices to land an order and then makes labor bear the burden. Eventually, he says, unemployment will be overcome and take its place with famine and pestilence as evils which need not be tolerated.

Cars of Steel on Roads of Steel

Illinois this week is laying what is thought to be the first highway with a metal base and curb. The use of steel plates as traffic treads, especially on bridges, dates back ten years, but it is now being extended to industrial plants, railroad crossings, and other important applications. As steel's qualities as a traffic base are realized, the manufacture of floor plate (Page 56) by grooved rolls to afford a raised pattern constitutes a more interesting phase of finished steel production. . . Automotive production for the remainder of the year holds no illusions for Detroit, which is writing 1930 off as a 3,750,000 car year, compared with the record 5,358,420 units of last year (Page 36). Nevertheless, preparations are under way for more economical production next year. The Ford Motor Co., which a few weeks ago bought $250,000 worth of automatic chucking machines—probably the largest machine tool order of the year—is now in the market for considerable grinding equipment (Page 101). Some of this Ford purchasing is for assembly plants abroad. Certain equipment utilized in Ford plants in the United States is too specialized and too high-producing for foreign production, hence not all domestic equipment is duplicated abroad. . . Ford, among other manufacturers, is paying increasing attention to foreign business, for one reason on account of the tariff, which is becoming a major issue abroad. Returning from Europe, a Democratic senator (Page 29) fears the newest Republican act will hinder the payment of war debts. Canada will shortly be imposing higher duties in fulfillment of the campaign pledge of Premier Bennett. President Hoover is completing his selections for the new tariff commission (Page 29), whose powers are the more critical for the administration because the tariff, with prohibition, threatens to be a major issue in the 1932 presidential election.

Grace vs. Eaton in Merger Testimony

Recalled to the stand in the Bethlehem-Sheet & Tube merger hearing, Eugene G. Grace, Bethlehem president, takes sharp issue with Cyrus S. Eaton, leading merger opponent. Mr. Grace denies Mr. Eaton's statement that Sheet & Tube chairman, James A. Campbell, said in meeting that others had taken the initiative in the merger. Shareholders dissenting to the merger organize a committee to bring suit for a "fair" price on their stock which is proposed to be taken by Bethlehem (Page 27). . . . Executives of the Corrigan, McKinney Steel Co., and the Newton Steel Co. are considering terms for an alliance. Newton, making sheets, would afford an outlet for Corrigan, McKinney's sheet bars (Page 28). . . . Traffic on roads where bridges and highway guards are obsolete or in poor state of repair is fraught with peril. Serious accidents are common occurrences where guards, built many years ago, give way before the impact of high-powered motorcars. This is a field offering a large market for steel (Page 23). . . . The manufacture of time-recording devices consumes some 1500 tons of steel annually, at least 250 tons of which is for export. The average unit is made up of 75 to 80 per cent iron or steel as compared with 40 per cent a few years ago (Page 64). . . . Arc welding of steel in building construction continues an infant industry, although it is gaining wide recognition as a fabricating process, and remarkable progress is being made. For the guidance of interrogators, principally building inspectors, one of the country's authorities in electric arc welding has answered a list of 35 questions (Page 60). . . . Current steel demand continues to improve moderately. Those markets devoid of gains at least show no declines, and the situation as a whole is slightly stronger (Page 71).

This light wooden guard, typical of many installed at dangerous points on highways, offers but slight protection to motorists

Neglected Bridge and Highway Guards Offer Opportunities for Steel Products

IN THE brief span of scarcely more than a quarter-century the highway traffic of the United States has been completely transformed. Horse-drawn vehicles, moving at an average speed of seven or eight miles per hour, have given way to high-powered motor cars which travel at from 20 to 80 miles per hour.

This change has been accomplished with the assistance of remarkable improvements in our highway systems. The mileage of hard-surfaced roads has multiplied many times. Thousands of grade crossings have been eliminated. Vehicular tunnels have been cut through hills and under rivers. Cities have been partially rebuilt to provide wider and more direct arteries of traffic. Great bridges have been thrown across broad streams and deep gorges.

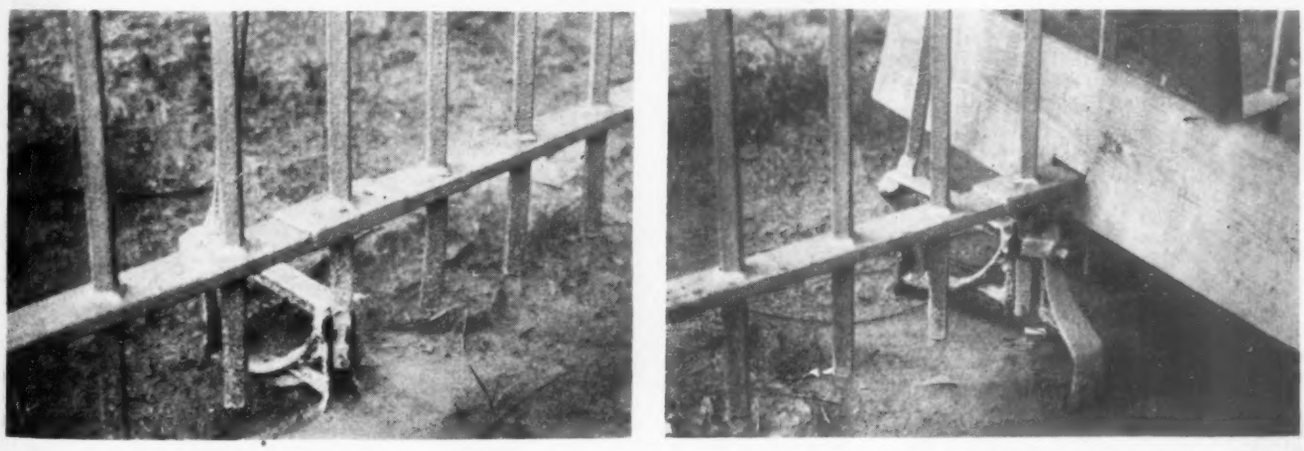
Apparently no expense has been spared in these great undertakings, which have had the effect of popularizing and extending travel by motor. Yet in the zeal of public officials to create new highways, to erect monumental bridges and to otherwise expedite traffic they have overlooked an extremely important detail. And because of this oversight, thousands of lives are lost annually and hundreds of thousands of motorists are exposed to needless risk of death or serious injury.

Railings Menace To Public Safety

This negligence of tragic import has to do with the failure to provide strong railings on bridges and on highways skirting embankment, rivers, railroad tracks and other points of danger. Anyone who will take the trouble to make even a casual inspection of bridge and highway railings and guards in his community will find conditions so shocking that he will wonder how they have escaped official care and public indignation.

On thousands of old bridges, which have been strengthened to carry the weight of modern traffic safely, the railings still are supported by inadequate castings which were designed and installed for horse-and-buggy traffic. In numerous cases, highways perched on the edges of bluffs several hundred feet high are protected by nothing more formidable than 2-inch planks nailed to 4 x 4-inch wooden posts. Many viaducts over railroad tracks may be found on which the original fences, having rusted away in spots, are held in place by a few twists of No. 8 wire.

If these conditions were exceptional or were confined to only a few communities, the evil could be cured by local action. But the situation is nation-wide. And it is serious enough to warrant the attention of every national organization, whose activitites are in any way identified with motor traffic or with the design, construc-



Close-up views of a fence which with an ordinary curb is expected to prevent motor cars from plunging down a 150-foot cliff

What protection would this make-shift barrier offer to a skidding automobile?

tion and maintenance of highways and bridges.

The annual toll of deaths traceable directly to inadequate guard rails and fences in the United States runs into the thousands. A search through the files of any newspaper will reveal numerous reports of fatalities resulting from the plunging of automobiles through flimsy guards. It is not uncommon to find accounts of pedestrians who have fallen to their deaths because the bridge railings on which they leaned gave way without warning. In one case, an entire section of a viaduct fence collapsed at the touch of a 4-year-old child, causing his death.

Clearly, it is our duty to correct this situation. The proper authorities must take into account the requirements occasioned by the use of high-powered automobiles, heavy trucks and mammoth buses—carrying millions of passengers daily. Every existing trace of bridge and highway railings harking back to horse-and-buggy days must be eradicated.

Speed Is Important Element

The engineering aspects of the problem are simple. It is known that a modern motor car traveling at a high rate of speed generates a tremendous amount of energy. Assuming that a car weighs 4000 pounds, the foot-pounds of energy created at various common speeds are as follows:

Miles per hour	Foot-pounds of energy
20	53,800
30	121,000
40	214,000
50	333,000
60	462,000

The element of speed is far more important than the element of weight, and for this reason calculations made 30 years ago based on slow horse-drawn traffic are wholly unsuited to present day conditions. In fact, if the same care were exercised in the design and construction of guard rails that is now devoted to the highways and bridges proper, the annual loss of life would be reduced to almost nil.

The technical problem is largely one of the selection of proper materials. Obviously castings of the kind and design so popular for mounting bridge rails 30 years ago are not suitable for use today—particularly if they are of the worse-than-sashweight quality found in the supports of a railing which collapsed recently and caused the loss of several lives.

Available materials include rolled, forged and cast steel, wrought iron, wire rope, malleable and gray iron castings, reinforced concrete and timber. It is possible that each of these familiar materials may be used with safety in certain parts of guard rails and under certain conditions. But the members of a guard rail or fence which are designed to take the principal shock imposed by a speeding automobile must have superior ability to withstand strain, fatigue and impact. Mere strength is not sufficient. Toughness and ductility also are necessary.

These requirements automatically exclude from consideration in important members timber, gray iron castings and reinforced concrete, except in unusual cases. One exception might be on short spans or on highways where great masses of reinforced concrete, used primarily to harmonize with nearby massive concrete construction, probably could be designed to hold back a rushing motor car. Even under these conditions, a steel guard rail would prove more satisfactory.

Steel cable or wire rope is an excellent material for use as horizontal members of a highway guard, provided, of course, that it is mounted on vertical posts of adequate strength and ductility.

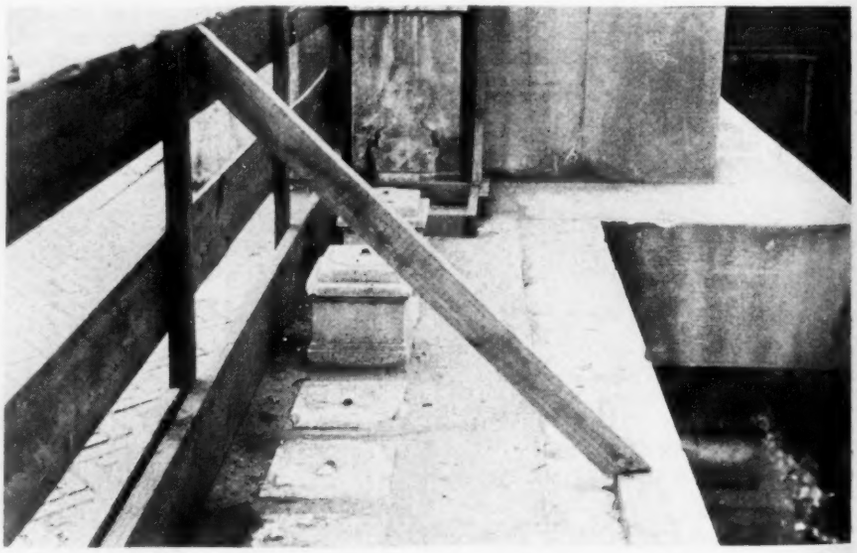
Gives Extra Margin of Safety

On bridges the problem is to design a railing which offers great resistance to impact and will bend instead of break when subjected to excessive shock. Ordinary steel fulfills these requirements as well as any other material, but when alloy steel, properly heat treated is employed, it far excells any other material available.

It is important to stress this superiority of special rolled and cast steels because there is a tendency in certain quarters for local public officials to adopt specifications for bridge railings which prohibit the use of the best material.

In one large city the following specification was adopted for a viaduct fence:

"All parts of the fence, except



Just a little bit of careless driving, the veering of a machine toward the curb, and this flimsy guard would collapse, sending the car and its occupants on an 80-foot dive

anchor bolts, not specifically marked to be rolled steel shall be malleable cast iron.....

"All malleable iron castings shall conform to the following minimum requirements as to tensile properties:

Tensile strength, pounds per square inch	55,000
Elastic limit, pounds per square inch	35,000
Elongation in 2 inches, per cent	18

"..... the posts and panel filling shall be of malleable iron of the quality required in the specifications."

Malleable cast iron is a good material for many purposes and it doubtless deserves consideration for use in certain parts of bridge railings. However, it is unwise, if not malicious, for city or county bridge engineers to adopt specifications which exclude steel from consideration as a material for bridge railings, posts and anchors.

Specified Values Are Conservative

Physical properties of structural steel for bridges, steel castings and malleable castings, as specified by the American Society for Testing Materials, are shown in the accompanying table. These are conservative figures. By employing alloy steels in rolled or cast form much higher values can be obtained with ease and uniformity. The following physical properties represent averages taken over a period of several months in tests on alloy cast steel:

	Normalized	Heat Treated
Tensile strength	96,000	127,000
Yield point	56,000	94,000
Elongation in 2 inches	23	17.5
Reduction of area	42	44.0

Malleable castings possessing higher values than stated in the A.S.T.M. specifications can be produced by many malleable foundrymen. The malleable cast iron furnished to the specifications for railings posts, quoted previously, tested 59,390 pounds per square inch, tensile strength; 38,920 yield point and 25.6 per cent elongation. The specified value for tensile strength was exceeded by 4390, the elastic limit by 3020 and elongation by 7.6 per cent—all showing that the malleable foundryman was conscientious in keeping well above specifications.

But the advantages of alloying and of heat treating extend the possibilities of steel to values so much higher than those possible of attainment by malleable that the attempt to throttle healthy competition by excluding all materials except malleable is a serious business. There is no excuse for discriminatory specifications, especially in cases where the question of public safety is involved.

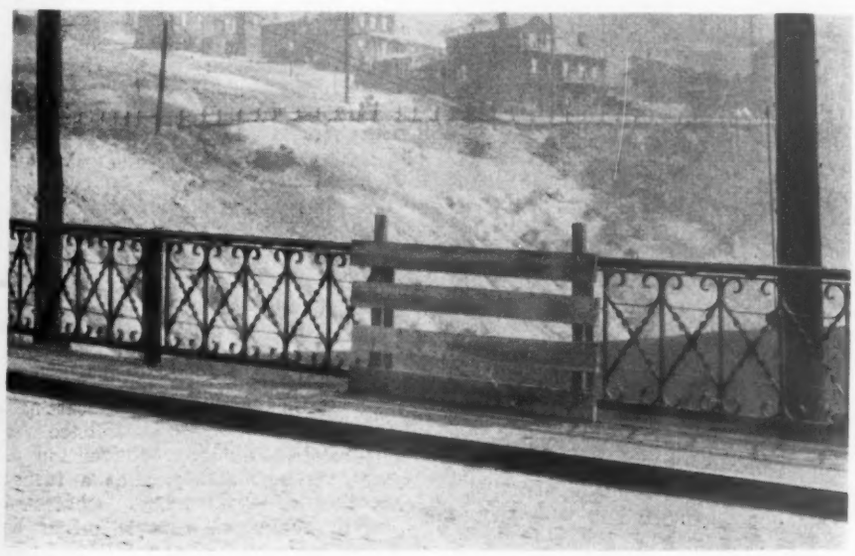
All traces of petty politics, favoritism, vindictiveness and other small-minded influences should be banished from this problem of making bridge and highway guards safe for modern traffic. The immediate responsibility rests upon the shoulders of our public servants—city, county, state and national officials. They will act if public opinion expresses itself forcefully—as it certainly will do if automobile clubs, highway associations and other agencies will organize a movement for improving the present deplorable conditions.

The situation also presents a challenge to the manufacturers of materials suitable for bridge railings and highway guards and fences. The producer of steel or other materials adapted to this type of construction who fails to explain the merits of his product to the public officials of the community in which he operates is neglecting a sales opportunity. If every rattle-trap guard rail in the country were to be scrapped tomorrow, the amount of steel required for replacement would mount to an impressive tonnage. It is a market well worth investigation, not only for the purpose of extending the service of steel, but in an even greater degree for preventing the unnecessary loss of human lives.

Physical Properties for Structural Steel and Steel and Malleable Castings in A. S. T. M. Specifications

	Structural Steel For Bridges	Steel Castings Hard	Steel Castings Medium	Steel Castings Soft	Malleable Castings
Tensile strenth, pounds per square inch	55,000-65,000	80,000	70,000	60,000	50,000
Yield point, pounds per square inch	....0.5 tons. str.*	0.45 tons. str.	0.45 tons. str.	0.45 tons. str.	32,500
Elongation in 2 inches, per cent	22	17	20	24	10

*But in no case less than 30,000 pounds per square inch.



A child leaned upon a section of this railing; it collapsed, plunging the boy to his death on railroad tracks below

Manganese Dumping Order Improbable, Is Indication

Washington—While it will probably be several weeks before the treasury department rules in the matter of alleged dumping of manganese ore in the United States by Russia, officials of the treasury indicate that the dumping order will not be issued.

At a recent press conference Secretary Mellon indicated that reliable figures on the cost of production in Russia are not readily available and the steel industry of United States vitally needs manganese.

Representatives of domestic manganese producers expect to file further information with the government on the cost of production in Russia.

Steel Code Is Widely Used

New York—Two hundred and three cities have included the specification of the American Institute of Steel Construction in their building codes. Eighty-two cities are permitting the use of the specification until new codes may be formally passed.

Davis Hits Below-Cost Sales; Business Cheers Founders

THE chump of the business world is the manufacturer who sells his product below the cost of production and then cuts wages of his employes to make up the deficit, declared Secretary of Labor James J. Davis in an address before the Steel Founders' Society of America Inc., at Pittsburgh, Sept. 11.

Competition is proper when confined to competition between rival efficiencies, Secretary Davis maintained, but it is an entirely different story when it leads to wage reductions and salary cuts.

Indications that business is picking up are discernible through the country, according to the secretary, who believes that industry should congratulate itself in being able to see the pendulum swing in the right direction after so short a time. While all have been carried to such a depth of pessimism that anyone who ventured to say that good times would return was labeled a Pollyanna, unmistakable signs of health and vigor are beginning to show themselves.

Recently agreements have been reached that guarantee peaceful relations in an industry employing 150,000 workers, the secretary cited. A big eastern concern has just added 1000 employes to the payroll and the latter part of the month 21,000 workers will be called back to work in another industrial city.

According to the secretary, the time is not far distant when the periods of unemployment will be a thing of the past. The genius of America practically has put out of existence such things as famine and pestilence, evils that once were thought beyond the power of man to control. Unemployment soon will be placed in the same category for the genius of industrial leaders is certainly equal to the task of solving this problem.

The secretary paid tribute to the work of the Steel Founders' society and declared that if that group can assist in stopping unfair competition, the sort which is ruining the business of the country and forcing companies to sell below the cost of production, it will have done something eminently worth while.

Trend Shows Hopeful Signs

Reports of members of the society attending the convention indicate a trend upward in business, although operations at present are spotty. In a majority of instances, September operations started off a trifle in advance of August and many see hopeful signs in the near future. It was brought out that the drafting rooms of machine tool manufacturers are busy working on the design of new tools and that considerable business from that quarter is due soon.

In mid-August, out of 60 companies reporting, 20 were operating below 50 per cent, 18 between 50 and 59 per cent, seven between 60 and 69 per cent, six between 70 and 79 per cent, three between 80 and 89 per cent, three between 90 and 99 per cent and three over 100 per cent. Out of 58 reporting on the business outlook 30 days ago, 3 reported that prospects are good, 43 fair and 12 poor. During the past month, this outlook has improved.

Regular business of the society was transacted at the morning session, with John E. Galvin, Ohio Steel Foundry Co., Lima, O., and vice president of the Central Atlantic division of the society presiding. Granville P. Rogers, managing director of the society, reported that copies of the standard cost accounting system, which has been prepared by the cost committee, now are ready.

The material has been prepared in loose-leaf form so that necessary additions or corrections may be made from time to time to keep the system up-to-date. He stated that six new members had been added to the society at the meeting of the board of directors immediately preceding the session, making a total membership of 75. A new membership drive committee has been appointed with S. Wells Utley, Detroit Steel Casting Co., Detroit, chairman.

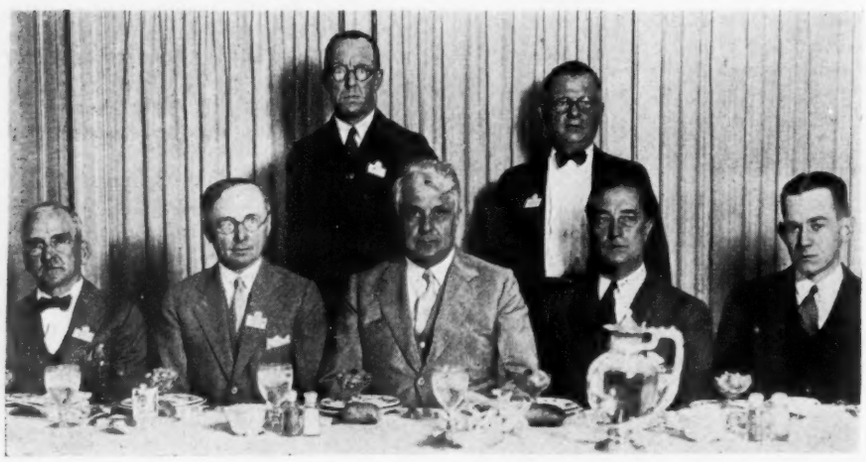
The next regular meeting of the society will be held in New York on the day preceding the meeting of the American Iron and Steel institute. The meeting which normally would be held in November has been postponed to Dec. 11 and will be held in Chicago.

Committee Member to be Named

Mr. Rogers stated that 15,000 copies of the standard trade customs developed by the society had been distributed to purchasing agents and that a gratifying response had resulted. He spoke of the invitation to appoint a member on the joint committee on foundry education in engineering schools, which is sponsored by the American Foundrymen's association, and stated that a representative of the society would be appointed in the near future.

Reports were made by R. J. Doty, Reading Steel Casting Co., Reading, Pa., chairman of the technical research committee; T. H. Harvey, Ohio Steel Foundry Co., Lima, O., chairman of the merchandising committee; and by W. H. Worrilow, Lebanon Steel Foundry, Lebanon, Pa., and Ralph F. Tillman, Industrial Steel Casting Co., Toledo, representing two divisions of a committee developing new uses of steel castings.

The merchandising committee was authorized to plan a convention of steel castings salesmen at a future meeting of the society. Chairman Galvin suggested that it might be exceedingly beneficial for the society to prepare and publish a manual for salesmen.



WITH THE STEEL FOUNDERS AT PITTSBURGH

Left to right in the picture: W. H. Worrilow, president, Lebanon Steel Foundry, Lebanon, Pa.; John E. Galvin, president, Ohio Steel Foundry Co., Lima, O.; Arthur Simonson, vice president and sales manager, Falk Corp., Milwaukee; James J. Davis, secretary of labor, Washington; Granville P. Rogers, managing director, Steel Founders' Society of America, New York; John E. MacCauley, vice president and general manager, Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.; Dr. L. W. Bass, executive assistant, Mellon Institute of Industrial Research, Pittsburgh

Merger Trial Is Prolonged; Grace Disputes Eaton

HEARING of the suit to block the Bethlehem-Sheet & Tube merger, now in its twelfth week in Youngstown, O., will be extended at least another week as a result of developments Tuesday. Continuing their attack on the Price, Waterhouse & Co. audit, embraced in the Bethlehem merger offer, counsel for opponents bored into endless statistical items presented by W. B. Campbell, one of the auditing firm's partners. Much interesting material concerning both companies was brought into the evidence. Mr. Campbell was told by the court to present certain enlarged data which will require several days to get together.

Cyrus S. Eaton, chief merger foe, is expected to testify again to offset testimony given Monday by Eugene G. Grace, Bethlehem president. Walter Meub, Sheet & Tube secretary, will have voluminous data to present. Samuel Mather, senior partner, Pickands, Mather & Co., Cleveland, and others also are expected to testify.

Who Started Negotiations?

Mr. Grace went on the stand Monday to refute testimony given by Mr. Eaton earlier in the trial. Mr. Eaton had quoted James A. Campbell, Sheet & Tube chairman, as saying at the meeting, March 11:

"I haven't had much to do with these (merger) negotiations. They were well along before I was brought into it. They were started by Mr. Dalton (Henry G. Dalton, director in Sheet & Tube and in Bethlehem) and Mr. Grace."

Mr. Grace testified Monday that he sat adjacent to Mr. Campbell at the meeting and Mr. Campbell did not make the statement ascribed to him, or any statement which might be so construed.

"Or any part of it?" asked Judge David G. Jenkins.

"No, sir, or any part of it," Mr. Grace replied.

Two witnesses for the defense took practically all the time last week. One was W. B. Campbell, and the other was William C. Reilly, vice president of Youngstown Sheet & Tube Co., in charge of operations.

Mr. Campbell through questioning by Frederick H. Wood, of counsel for the merger proponents, undertook to demolish the elaborate theoretical structure on depreciation and maintenance charges of Bethlehem which were described by Cyrus S. Eaton, when a witness, as containing "grievous errors." Statistics were presented tending to show that the Bethlehem bonus to executives in 1929, if measured against Sheet & Tube earnings for that year but placed upon a Bethlehem basis of computation, would figure out 30 cents a share on earnings, returned for that year as $20 a share.

Mr. Reilly testified first under cross-examination by Clan Crawford, merger opposition counsel, and later in re-direct examination by Mr. Wood. He said he favored merger with the Bethlehem company because funds would be available for rebuilding certain portions of Sheet & Tube mill equipment demanded by the revolutionary changes in the methods of manufacturing wrought pipe and sheets. He testified that to replace the present lap-welded equipment of Sheet & Tube with modern electrically welding equipment will require the expenditure of $16,000,000; and to replace the present sheet mill equipment, $15,000,000 will be needed, a total of $31,000,000.

He told of the company's needs with reference to new machinery that will meet the demands of modern pipe consumers for 40 to 45-foot lengths against the former 20 to 25-foot lengths; with ¼-inch walls, instead of the former standard ⅜-inch walls, and of 0.40 per cent carbon steel content instead of the former 0.12 per cent carbon. This will necessitate entire revamping of the company's auxiliary equipment in the pipe department. To this must be added the change in manufacture of seamless tubes in deference to trade demand for seamless tubing down to 2½ and even 2 inches in diameter. He was not asked about the changes proposed in sheet manufacture, but it is understood they contemplate installation of continuous mills producing long length sheets such as are produced by other competing mills.

Dissenters Organize To Sue for »Fair Price«

The Youngstown Sheet & Tube Co. Dissenting Shareholders' Protective committee has been formed, with these in charge: W. R. Burwell, Hugh B. Wick and T. H. White, with W. N. Gates as secretary. Offices are at 1857 Union Trust building, Cleveland.

These dissenting stockholders last spring demanded from the company what they said was a fair cash value of their shares which the Sheet &

BRIDGE DESIGNERS HONORED AT MID-HUDSON DEDICATION

The new mid-Hudson bridge, a 3000-foot span, at Poughkeepsie, N. Y., under construction nearly four years, and costing $5,890,000, was formally dedicated Aug. 25. Governor Franklin D. Roosevelt and former Governor Alfred E. Smith lauded the work of the designers and builders in speeches to audiences of 25,000 persons. Left to right in the illustration are: Col. Frederick Stuart Greene, state commissioner of public works; Mrs. Roosevelt, cutting the ribbon and opening the bridge to traffic; Ralph Modjeski, and Daniel E. Moran, the designers

Tube refused to pay. This demand was for payment at the rate of $250 a share of the common stock, and demand was made on April 28. Instead, the Sheet & Tube directors proposed to pay $110 a share, and this the dissenting owners refused to accept.

The committee has issued a circular to other Youngstown Sheet & Tube dissenting stockholders to deposit their stock with the committee so that it may take action to compel settlement of their combined claims against the company. The committee is to be empowered to bring suit if necessary in a court of competent jurisdiction which then will be asked to name what it considers a fair price for a share of the stock.

Each dissenting share will not be assessed more than $1 to pay expenses, committee members agreeing to serve without compensation. The agreement with the committee names as depositaries the Bank of Manhattan Trust Co. of New York, the Cleveland Trust Co. of Cleveland, and the Dollar Savings & Trust Co. of Youngstown, O.

The committee also has named as registrars of the certificates of deposit to be issued under the agreement the Chemical Bank & Trust Co. of New York, the Union Trust Co. of Cleveland, and the City Savings & Trust Co. of Youngstown, O.

Corrigan, McKinney and Newton Consider Alliance

Some sort of alliance between the Corrigan, McKinney Steel Co., Cleveland, and the Newton Steel Co., Youngstown, O., appears to be in the making. William G. Mather, president, Cleveland-Cliffs Iron Co., is understood in Cleveland banking circles to be the titular head of the Corrigan, McKinney company. He has said he has been negotiating with officers of Newton Steel for an alliance with Corrigan, McKinney. Definite announcement is expected to be made following the meeting of Newton Steel directors, Sept. 24.

Stock of Newton Steel on Thursday and Friday last advanced 12 points on extensive buying, it is said, by Cleveland interests. Whether outsiders can purchase into Newton and obtain more than a minority interest appears to be a question. Newton officials say they and their Pittsburgh associates have a close grip upon a majority of the Newton shares.

Corrigan, McKinney, with four blast furnaces and 14 open-hearth furnaces is a producer of considerable tonnages of semifinished steel and steel bars. Newton Steel has been a buyer of sheet bars for its Newton Falls works and its new extensive sheet plant at Monroe, Mich. Newton is an important producer of autobody and furniture sheets.

Republic Stack at Warren Enlarged to 1000 Tons

Republic Steel Corp., Youngstown, O., has blown out the Trumbull blast furnace at Warren, O., in preparation for its expansion to the largest furnace in the corporation and one of the largest in the world. Cost of the improvement will approximate $325,000.

When completed, the furnace will have daily capacity increased from 750 tons of pig iron to 1000 tons. The steel and machine work necessary for the betterment have been under way for some time. Work is expected to be finished and the furnace relighted by Nov. 1.

The Warren work is part of the $6,000,000 program of improvements and modernization put under way by Republic for 1930. Increased operating efficiency and lower costs are expected to result from these expenditures.

Campbell Marks Birthday

James A. Campbell, chairman of the Youngstown Sheet & Tube Co., was to celebrate his 76th birthday, Sept. 11, at a dinner given in his honor at Youngstown, O., at which Newton D. Baker, chief counsel for the defense in the current merger case, was to be the principal speaker. Some say that Mr. Campbell plans retirement and residence in California when the merger trial is concluded.

Predicts Enduring Recovery

Forecasting a slower, more orderly and possibly a more permanent return to normal conditions, A. W. Robertson, chairman of the board of directors of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., adds further in his opinion that the bottom of the business depression has been reached and a recovery is due.

Electrical manufacturing industries have done exceptionally well over the current recession in business activity, Mr. Robertson believes, in showing that due to plant modernization, general industrial demand for electrical equipment has been good this year.

Union Carbide & Carbon Buys International Oxygen

New York—Union Carbide & Carbon Co., 30 East Forty-second street, has acquired the assets and business of the International Oxygen Co., Newark, N. J. The International company is a manufacturer of compressed oxygen, hydrogen and acetylene gases, and also solid cutting, welding tools and similar equipment. The International Oxygen Co., in addition to Newark, also has plants at Buffalo, Toledo, O., and Tarrisville, Conn. It had total assets of $1,761,586 on March 10.

A.O. Smith Output High

Welded pipe division of A. O. Smith Corp., Milwaukee, continues to operate at close to capacity and unfilled orders are sufficiently large to assure the present rate for a considerable time, according to C. C. Joys Jr., sales manager of the division.

August shipments are stated to set a new high record for pipe-line material, probably exceeded the 65,000 tons dispatched to the oil and gas fields in July, which set the previous high mark. Interpreted in length, the July figure amounted to 429 miles of pipe. In the fiscal year ended Aug. 1, the Smith corporation shipped approximately 5000 miles of pipe.

Dividends Declared By Industrial Companies

Ross Gear & Tool Co., Lafayette, Ind., reports net profits for the eight months ended Aug. 31 of approximately $277,000 after all charges and taxes, equal to $1.84 a share on 150,000 shares of no par capital stock. This indicates July and August net of about $20,000. For the six months ended June 30, the company reports net profit of $256,948, or $1.71 a share.

Ludlum Steel Co., Watervliet, N. Y., has declared the usual quarterly dividend on its preferred stock but passed its common dividend.

Midland Steel Products Co., Cleveland, has declared a dividend of $2 on its cumulative first preferred stock, 50 cents on the noncumulative preferred and 75 cents a share on the common, payable Oct. 1 to stock of record Sept. 22.

Arthur G. McKee & Co., engineers, Cleveland, will pay the regular quarterly dividend of 87½ cents and an extra of 12½ cents Oct. 1 to stockholders of record Sept. 20.

Warren Foundry & Pipe Co., Phillipsburg, N. J., reports net profit of $127,025 for first half, compared with $123,391 a year ago.

Keystone Steel & Wire Co., Peoria, Ill., reported a net profit of $585,909 for the fiscal year ended June 30, equal after dividends on preferred stock to $2.19 a share on common stock outstanding. This compares with net profit of $1,257,418 or $5.18 a common share, in the preceding fiscal year.

Acme Steel Co., Chicago, maker of hot and cold-rolled strip steel, has declared a reduced quarterly dividend of 62½ cents a share on common stock, payable Oct. 1 to holders on record Sept. 22.

Hoover Keeps Two Members of Old Tariff Commission

WITH the appointment Sept. 16 of three more members to the new tariff commission, President Hoover has filled five of the six memberships.

Alfred P. Dennis, Democrat from Maryland; Edgar B. Brossard, Utah Republican; and John L. Coulter, North Dakota Republican, constituted the President's choice to augment the recent appointment of Thomas W. Page and Henry P. Fletcher, the latter to be chairman of the reorganized body.

Both Mr. Dennis and Mr. Brossard bring experience to their position, being members of the commission appointed by President Coolidge in 1925. The former served as vice chairman.

Mr. Coulter is president of North Dakota Agricultural college, served on the War Industries board in 1918 and is considered an authority on rural economics.

The sixth member of the tariff commission will be announced within two weeks.

Senatorial investigations, 35 in number, await the commission. Included are those on pig iron, paragraph 301; wire fencing and netting, paragraph 317; 11 articles of agricultural hand tools, paragraph 372; fourdrinier wires, woven cloth and cylinder wires, paragraph 318; and bells, paragraphs 364, 397 and 1541.

New Canadian Tariff Near

Ottawa, Ont.—The message from the throne, at the opening of the special session of parliament Sept. 8, said, among other things: "Measures will be submitted for your consideration, including amendments to the customs act and the customs tariff which, it is anticipated, will do much to meet the unusual conditions which now prevail."

This is taken to insure immediate action toward a higher Canadian tariff, an important plank on which Premier Bennett rode into office. The Bennett conservatives have a large majority in the house; the Liberal majority of six in the senate is not regarded as an obstacle.

Sees Europe Retaliating

Washington—Senator A. W. Barkley, Democrat, of Kentucky, just returned from Europe, is gloomy concerning the tariff. He quotes a high British official as saying the new American tariff will hinder Britain in paying her war debt. He claims to have found the Continent preparing retaliatory measures, and predicts a shrinkage of $1,000,000,000 annually in American trade with the Continent. A renewal of the campaign to cancel war debts caused by munitions purchases is certain, he fears.

Soviet Orders Help Make Tractor Exports a Record

Washington—Exports of tractors from the United States in the first half of 1930 increased $11,000,000 over the first half of 1929 and set a new record, according to the department of commerce.

Shipments the first half year totaled 35,790 units valued at $40,537,650, compared with 34,666 units valued at $32,996,220 in the first half of 1929. Exports to Russia, the leading market, reached the unprecedented total of $21,715,876 not including parts, which amounted to more than $3,000,000. In the first half of 1929 Russia took only $4,300,000 worth of tractors from the United States.

Western Scrap Men Organize Chapter at Seattle

Scrap iron dealers of Washington, Oregon and British Columbia meeting at Seattle, Sept. 4, organized the northwest, or thirteenth chapter, of the Institute of Scrap Iron and Steel Inc., New York. Julius Glant, of the Pacific Iron & Metals Co., Seattle, was elected president of the new chapter.

Accept Revised Bar Code

Washingon—Sufficient signed acceptances to the revision of the simplified practice recommendation on steel reinforcing bars have been received to make the recommendation effective, states the department of commerce. The revision was distributed June 16 to those interested.

Significant Developments of the Week in Business and Politics

Lord Melchett, English iron and coal operator, former member of Lloyd George's cabinet, on completing an American tour said: "Your leading financiers and industrialists have not told me anything to indicate you are in a bad way. It is absurd to expect industries to operate on a 100 per cent of readjustment."

Detroit, industrial city hardest hit by business depression, its population over half foreign, with 125,000 jobless, conducted an election for mayor Sept. 9. Of approximately 310,000 votes cast, the communist candidate polled 3400 or slightly over 1 per cent.

National Shipbuilders Security Ltd., formed by British shipbuilders last year to eliminate competition and rationalize their industry, is dismantling the shipyard of William Beardmore & Co. Ltd., on the Clyde, from which many noteworthy liners and warships have been launched.

Michelin Tire Co., important French and Italian tire manufacturer, after 23 years' operation is abandoning its plant and model village at Milltown, N. J., withdrawing from the American market. Quality has been lost sight of in a competition based wholly on price, the company explains.

Straws: New York Shipbuilding Co., Camden, N. J., is taking on 500 to 600 additional workers. Sherwin-Williams Co., Cleveland, largest paint manufacturer, has resumed full-time operations. Six zinc mines in tri-state region have resumed. Sinclair Refining Co. has added 100 men at its Cinco, Tex., refinery.

Dun's review states: "With full allowance for the seasonal character of the change and with recognition of the negative phases which still prevail, the upturn in business is more clearly defined." Bradstreet's review says: ". . . the fact remains that business volume even if merely seasonal has rallied from the depths and furthermore, comparisons with 1929 should tend to become more cheerful as the fourth quarter comes in sight."

Wall Street is impressed, although security prices do not reflect it, by the report of the Great Atlantic & Pacific Tea Co. that retail business began improving about the middle of August. This coincides with the experience of the F. W. Woolworth Co., bringing the two largest "chains" in agreement. The A & P management says, "all indices of the company encourage it to believe that an improvement has begun which will continue through the fall and winter."

President Tightens Ban on Labor Immigration To Curb Unemployment

IMMIGRATION will be further restricted by the state department, acting at the direction of President Hoover, to prevent increased unemployment. Complete cessation of all immigration this fall and winter will not be resorted to, as advocated by William Green, president of the American Federation of Labor. The law gives the state department the right to refuse a visa to an applicant for entry to this country whenever it appears the applicant will become a public charge. American consuls in foreign countries have been instructed to exercise this right, considering the widespread unemployment prevailing in this country. Foreigners who seek to come to this country and take their chances on obtaining work to support themselves will find it difficult to get permits.

Mexican Immigration Drops

This regulation has been enforced against Mexicans and Canadians since March. Only 3140 Mexicans have been admitted during the last six months, an annual average of 6280, compared with 56,747 for the last five fiscal years, or a reduction of 88.9 per cent. Figures for Canada have not been tabulated but similar results are reported to have been obtained. The bars will not be lifted until employment conditions are normal.

Loss of Production Chief Cost of Accidents

Accidents cost money far beyond the medical bills, compensation and insurance premiums, according to a study by the bureau of mines, encompassing coal and metal mines, steelworks and other industrial operations. Some authorities hold that the ultimate cost of accidents is four or five times the amount paid out for those items immediately affected. The principal loss comes from disorganization of a smoothly running department and upsetting of production schedules. Efficient safety work, the bureau concludes, pays for itself many times over in any industry.

Standardization of some operations and training employes so that each one has an understudy available to fill a vacancy caused by accident is recommended as one means for reducing cost. As the superintendent's job is to keep the plant going economically, safety work is said to be a major part of his operations. Searching for causes of accidents, guarding against them and constant education of employes in safe methods are among his chief responsibilities.

Organize To Put «Right Man in Right Place»

Employment from the standpoint of the employe, as well as the employer is the study to be pursued by a new organization formed by the Milwaukee branch of the National Metal Trades association, under the name of the Industrial Relation and Employment committee. Twenty-five plants were represented at the first meeting and more have signified their intention of co-operating.

A. H. Pfeiffer, employment manager, Harnischfeger Corp., has been chosen chairman: M. J. Dalton, Chain Belt Co., vice-chairman; and Francis Riley, Vilter Mfg Co., secretary.

The primary purpose of the committee is to co-operate to get the right kind of men to fill jobs when there are vacancies.

"Employment managers in the metal trades have been working toward that end for several years and are now prepared to carry on the work in a more systematic manner," said Mr. Pfeiffer. "Putting men on jobs for which they are best qualified is to the advantage of employes and employers since it makes for better work and greater satisfaction."

Small-Income Families Demanding More Luxuries

Families of American wage earners are paying considerably less for food than they did before the war, and more for housing and sundries, including luxuries. This is the interpretation placed on a systematic investigation by the bureau of labor statistics of expenditures by 100 families in Detroit whose annual incomes are less than $2000 per year.

The bureau found the incomes divided according to those percentages: Food, 32.3; housing, 22.6; clothing, 12.2; fuel and light, 6, and sundries, 26.9. The National Industrial Conference board, analyzing the bureau's report, states that in prewar days the income would have been divided as follows: Food, 43.1 per cent; housing, 17.7; clothing, 13.2; fuel and light, 5.6, and sundries, 20.4.

The investigation disclosed an increasing demand for bath tubs, radios and automobiles among families whose incomes average $1711.87 per year. Forty-seven of the 100 families depending on factory employment for their sustenance own automobiles; 43 have telephones and 36 have radio sets. Eighty-seven families carry life insurance.

OXYGEN LANCES CUT "HOT TOPS" FROM NICKEL STEEL INGOTS

In the making of nickel steel, the hot end of the ingot is built up with a mold made of ground brick and coke, high enough to take care of the pipe well. By this method, an ingot is obtained which provides the required amount of finished stock, but after the mold is removed it is necessary that the "hot top" be cut off as quickly as possible. The use of two oxygen lances provides a means of removing tops from 24 by 66-inch ingots in 15 minutes

Pratt & Whitney Co. To Mark 70th Anniversary with Reunion Oct. 1

PRATT & WHITNEY CO. will celebrate the seventieth anniversary of its founding with a reunion of old employes at the plant in Hartford, Conn., Oct. 1. Clayton R. Burt, president, announces open house on that date and all former as well as present employes will be welcomed.

The plant, in full operation, will be open to inspection by the visitors in the afternoon, and in the evening a banquet will be served at the Hartford club in honor of those men who have served the company for 20 years or more. Many leaders of the machine tool industry have been invited to this banquet and an attendance of over 400 is expected.

Association Begins in 1852

Francis A. Pratt, from Vermont, and Amos Whitney, from Maine—the latter of the same family as the famous Eli Whitney — met at the Colt armory in Hartford in 1852. In 1854 they began their life-long association, at the Phoenix Iron Works in Hartford, where Mr. Whitney was a contractor and Mr. Pratt superintendent. There they remained for ten years, but in the meantime, in the summer of 1860, they rented a small room on Potter street in Hartford and as a side line began the manufacture of linen winders and other mechanisms, doing this after regular working hours.

Overcoming many difficulties, including a fire, they grew and prospered, and as manufacturers of gun machinery during the Civil war they became firmly established in the field of production machine tools, precision small tools, and special machinery having to do with interchangeable manufacturing.

From the one unpretentious room on Potter street there developed a plant on Capitol avenue which now covers many acres, employes over 2000 people, and the products of which are known and used in every country where precision metal-working is carried on. The Pratt & Whitney Co. not only has developed much important machinery during the 70 years of its existence, but it also has had the distinction of training a remarkable number of famous mechanics—among others Ambrose Swasey, Worcester R. Warner, Edwin C. Henn, A. F. Foote, George C. Bardons, J. N. Lapointe and E. P. Bullard.

Otis Steel Relining Stack

Otis Steel Co., Cleveland, has blown out No. 1 blast furnace at its Riverside plant for relining and other repairs, to cost $100,000 and require eight weeks. The No. 2 furnace at the Riverside plant was recently repaired and enlarged.

Study Rail Scrap Contracts

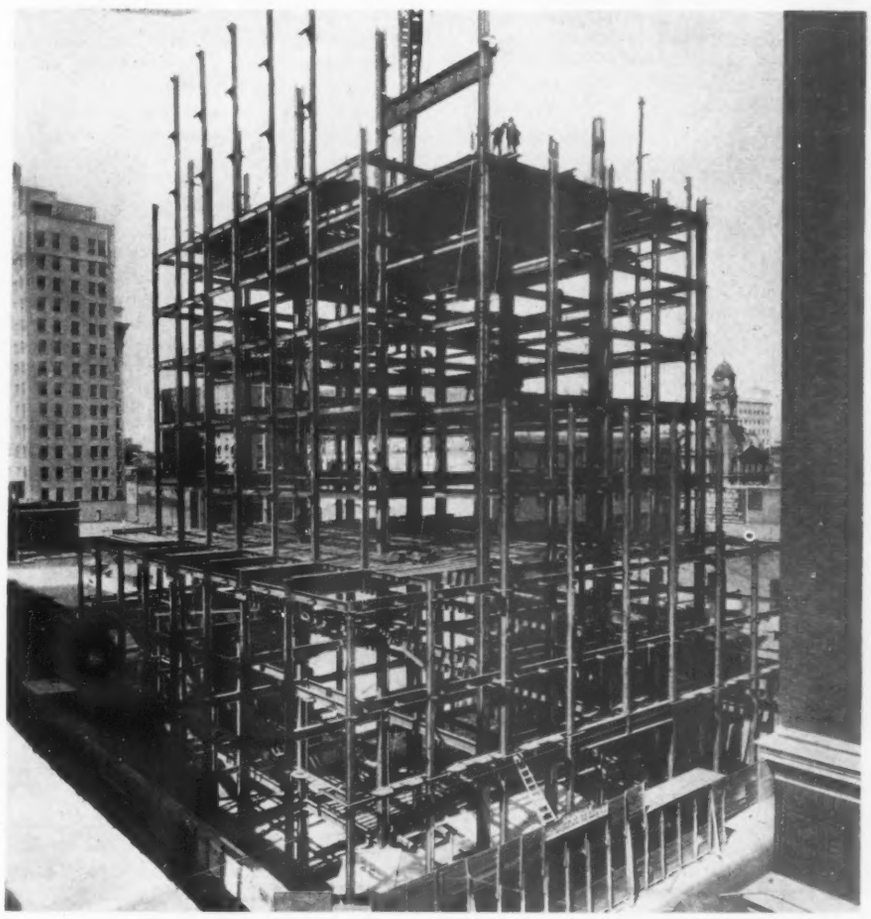
A study of contracts between railroads and scrap iron dealers governing the sale of railroad scrap, has been authorized by the executive committee of the Institute of Scrap Iron and Steel Inc., New York. Benjamin Schwartz, director general of the institute, is directed to appoint a committee of five, himself as chairman, to make a study of the various clauses and practices in railroad scrap contracts, with the aim of seeking the cooperation of railroads to bring about uniformity and mutuality in certain clauses and contracts. The research bureau of the Institute is gathering data with reference to terms of payment, time of delivery, shipping instructions, cancellation rights, point of delivery, shortages, net ton or gross ton basis, etc. It is estimated that over 3,000,000 tons of scrap iron and steel are sold annually by the railroads of the United States.

Replogle Seeks Funds Here To Reorganize British Mills

An attempt to interest American capital in his project for reorganizing the British steel industry was indicated by J. Leonard Replogle, retired American steelmaker, on leaving London for the United States, Sept. 10.

As noted in the Sept. 4 issue of STEEL, Mr. Replogle has surveyed the British steel industry. For it to regain European leadership Mr. Replogle proposes, in a lengthy report, the rationalization of the industry, scrapping of most of the obsolete British blast furnaces and the construction of a 3,000,000-ton capacity mill on either the Welsh or English seaboard, at a cost of $300,000,000.

It is said that while the British labor government looks favorably upon the Replogle proposals, some steelmakers have reserved judgment.



TALLEST BUILDING YET ERECTED BY ARC WELDING

A 19-story building is being erected for the Dallas Power & Light Co., Dallas, Tex., with practically all fabricating, both field and shop, by electric arc welding. Steel construction is being done by the Mosher Steel & Machinery Co., Dallas, using equipment made by the Lincoln Electric Co., Cleveland

Corporation Bookings Sag in August to Low Point of Past Two Years

DUE to increased operations and accompanying slackness in new business in August, orders on the books of the United States Steel Corp. as of Aug. 31, at 3,580,204 tons, were the smallest since July, 1928, and reflected an 11 per cent reduction from July, 1930. Following are comparisons:

Date	Total	Change, tonnage	Change, per cent
1929			
Jan. 31	4,109,487	132,775+	3.34+
Feb. 28	4,144,341	34,854+	0.84+
Mar. 31	4,410,718	266,377+	5.70+
April 30	4,427,763	17,045+	0.38+
May 31	4,304,167	123,596—	2.88—
June 30	4,256,910	47,257—	1.10—
July 31	4,088,177	168,733—	3.90—
Aug. 31	3,658,211	429,966—	10.50—
Sept. 30	3,902,581	244,370+	6.68+
Oct. 31	4,086,562	183,981+	4.71+
Nov. 30	4,125,345	38,783+	0.95+
Dec. 31	4,417,193	291,848+	7.74+
1930			
Jan. 31	4,468,710	51,517+	1.20+
Feb, 28	4,479.748	11,038+	0.25+
Mar. 31	4,570,653	90,905+	2.03+
April 30	4,354,220	216,433—	4.73—
May 31	4,059,227	294,993—	6.78—
June 30	3,968,064	91,163—	2.24—
July 31	4,022,055	53,991+	1.36+
Aug. 31	3,580,204	441,851—	10.9—

Bad-Order Equipment of Railroads Is Increasing

Class I railroads Aug. 15 had 148,575 freight cars, or 6.7 per cent of the number of line, in need of repairs, states the car service division of the American Railway association. This was 3588 more than on Aug. 1. As of Aug. 23 the same carriers had 436,735 surplus freight cars in good order. This was a decrease of 1975 cars from Aug. 15. On the same date the Class I railroads had 8467 locomotives, or 15.2 per cent of the number on line, in need of repair. This was an increase of 460 from Aug. 1.

Machine Tool Orders Show Turn Passed in August

Total actual orders in August for all three classes of machine tools showed an index of 113.8, following apparently the low point in July of 91.1, or a 25 per cent gain. August's increase was not enough, however, to turn the three-month average. Cancellations were lower than usual at less than 1 per cent of new orders. Shipments were below July and at the lowest point of the year. Index of orders by the National Machine Tool Builders' association, Cincinnati, follows:

1929	*Index A	*Index B	*Index C	Total
Aug.	284.2	279.7	272.6	286.1
Sept.	268.5	258.6	252.3	265.8
Oct.	295.4	263.0	269.0	287.0
Nov.	250.8	235.7	261.2	247.2
Dec.	224.0	212.7	258.3	222.1
1930				
Jan.	173.8	171.9	226.8	175.4
Feb.	170.3	169.1	213.6	172.6
March	172.8	184.0	219.7	177.8
April	167.6	197.7	214.4	176.8
May	155.2	191.2	195.3	165.1
June	137.6	171.6	169.4	146.7
July	106.6	146.5	146.9	117.3
Aug.	100.8	137.0	138.0	110.2

*Note—Index A, base over $50,000; Index B, base $10,000 to $50,000; Index C, base less than $10,000. Base: average shipments for years 1922-23-24. Totals: The total of all reports is not an average of A, B and C, but the sum of each item in percentage of the total base.

Enameled Sheet Metal Ware Falls Further in Output

Showing the third consecutive monthly decline, production of sheet metal ware in July fell to the low of 1930. July's total falls 14 per cent behind June's, according to department of commerce totals following:

In Dozens

1929	Total	White	Grey and Colored
July	290,532	127,058	163,474
(7 mos.)	2,712,242	1,186,878	1,525,364
August	385,162	153,969	231,191
Sept.	338,169	143,505	194,664
October	371,292	158,138	213,154
Nov.	305,714	115,117	190,597
Dec.	391,523	103,404	288,119
Total (year)	4,504,102	1,861,011	2,653,091
1930			
Jan.	332,146	110,758	221,388
Feb.	331,915	120,523	211,392
March	341,372	124,856	216,516
April	318,431	124,562	193,869
May	290,617	114,709	175,908
June	247,861	90,151	157,710
July	213,420	70,718	142,702
(7 mos.)	2,075,762	756,277	1,319,485

More Cars Are Installed

Washington—Class I railroads in the first seven months of 1930 placed 55,660 new freight cars in service, states the American Railway association. This number included 28,616 box, 21,463 coal, 3177 flat, 1615 refrigerator, 488 stock and 301 miscellaneous cars. In the same period of 1929 the railroads inducted 42,552 new freight cars. On Aug. 1 the carriers had 19,627 cars on order, against 36,335 one year ago and 14,704 two years ago.

Will Oil Well Supply Co. Re-enter Production Field?

Oil Well Supply Co., Pittsburgh, whose properties and business have been sold to the United States Steel Corp., will not pass out entirely as a corporate entity.

Stockholders of the Oil Well company met recently and approved a change of name to the Pittsburgh United Corp. The Steel corporation, in purchasing the Oil Well Supply Co., did not acquire the latter's franchise or treasury stock. Added to these are 64,992 shares of common stock of the Steel corporation and the rest of the sale price, $6,865,800 in cash or an equal amount of Steel corporation common stock, which the Pittsburgh United Corp. receives for the sale of the former Oil Well Supply Co.

At this time it has not been stated what disposal will be made of the assets in the treasury of the newly-formed Pittsburgh United Corp. Probably a new board of directors and group of officers will be named at a subsequent meeting. Those in charge at the present will in all probability become heads of what is to be a new Steel corporation subsidiary.

Transfer of the properties of Oil Well Supply Co. to the Corporation will be effected on or before Sept. 30.

Week's Coal Output Off

Bituminous coal production for the week ended Sept. 6 was 8,057,000 net tons, according to the bureau of mines. This compares with revised output of 9,053,000 tons during the week ending Aug. 30. To date 1930 production aggregates 309,066,000 tons, slightly under the 349,797,000 tons for 1929.

Coal for 33 Days Stored

Total stocks of bituminous and anthracite coal in industries in United States and Canada as of Aug. 1 totaled 32,735,000 net tons or 33 days supply, the National Association of Purchasing Agents, New York, estimates. As of Aug. 1 the by-product coke industry had 28 days' supply on hand, electric utilities 61 days, railroads 19 days, steel mills 40 days and other industries 34 days.

Members of the Cleveland Engineering society will inaugurate the fall season of inspection trips with a trip to Detroit and Dearborn, Mich., Sept. 29, to view the properties of Henry Ford and the Ford Motor Co.

Industrial Men in the Day's News

Adolf H. Schaffert, Vice President and Works Manager, Truscon Steel Co.

HAVING been in business for himself at the age of 11, he has an industrial career extending back 39 years, despite the fact he is but 50 years old.

FROM sorter of nails and spikes in a car shop in Illinois, he has risen to the vice president's chair of an internationally known steel fabricator.

WHILE with a Maryland brush manufacturer, he conducted a survey of brush manufacturing in England, Belgium, France and Germany.

ALTHOUGH but 50 years old, Adolf H. Schaffert, recently appointed vice president and works manager, Truscon Steel Co., Youngstown, O., as noted in STEEL of Aug. 21, can be said to have had 39 years of business experience. This is because at the age of 11 he was in business for himself as a newsboy-bootblack on the streets of Chicago. During that period of his career he lived at the Newsboys' home and obtained much of his education through home study, although he later attended night school.

For about three years he herded cattle on ranches in western Nebraska and eastern Montana. Returning to Chicago at the age of 15, he obtained his first industrial employment at the car building plant of the Pullman Co., Pullman, Ill., where he sorted nails and spikes and also stenciled cars. After about two years he became a machinist and toolmaker apprentice, serving until he was 21. Sidelines during that time included a job as sparring partner and trainer in an athletic club, another as cobbler and a third as barber. He soled shoes and cut hair for his fellow boarders who were unable to pay current prices.

Mr. Schaffert became foreman of the shops of the Western Electric Co., Chicago, at the age of 21 and then served nine years, first as general foreman and later as master mechanic. His next connection was with the General Fireproofing Co., Youngstown, O., first for five years as general superintendent and then for three years as manager. For the following six years he was production manager and director of Yawman & Erbe Mfg. Co., Rochester, N. Y., and for about four years prior to becoming affiliated with the Truscon Steel Co., he was factory manager of the Ox Fibre Brush Co., Frederick, Md. During that period he made a survey of brush manufacturing conditions in England, Belgium, France and Germany.

M. J. CZARNIECKI, assistant general manager of sales, A. M. Byers Co., Pittsburgh, has been appointed to the newly created positon of manager of tubular sales, effective Oct. 1. Mr. Czarniecki joined the Pittsburgh sales organization of the Byers company in 1913. The following year he was assigned to the New York office, where he remained until transferred in 1915 to Chicago. Following the World war he returned to Chicago as district manager and the next year was transferred to New New York, where he remained as district manager until 1925 when he was appointed assistant general manager of sales at Pittsburgh.

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R. C. Force, president of the Caterpillar Tractor Co., Peoria, Ill., since the present company was formed, has been elected chairman of the board. B. C. Heacock, vice president, succeeds Mr. Force as president.

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C. Roy Keys, vice president and general manager, Curtiss Aeroplane & Motors Corp., Buffalo, in charge of operations, has resigned. He will be succeeded by William S. Leaycraft, now treasurer of the corporation. Mr. Keys will be associated with his brother, C. M. Keys, in aeronautics transportation, with offices in New York.

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Frederick H. Low, identified for 17 years with plant engineering development, has been appointed secretary and general manager of King Refractories Co., Buffalo.

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James H. Kennedy, for several years assistant blast furnace superintendent, Mystic Iron Works, Everett, Mass., has become associated with Leonard J. Buck Inc., 74 Trinity place, New York, importor and dealer in ores and other raw materials used in the iron and steel industry, including Swedish iron ores, Russian manganese ores and Australian manganiferous iron ores.

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Gordon F. Daggett, 735 Briarwood place, Milwaukee, has been appointed to represent the Stephens-Adamson Mfg. Co., Aurora, Ill., in Wisconsin, in the sale of its conveying, screening and transmission machinery. Mr.

Daggett is a graduate of the University of Wisconsin and a member of the American Society of Civil Engineers as well as Engineering Society of Wisconsin. He obtained his early business training in connection with west coast power projects. The last 15 years have been devoted to private engineering practice and in various positions with the Wisconsin highway commission, Madison, Wis., and as executive secretary for Wisconsin Mineral Aggregate association.

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George M. Smith, formerly general superintendent of South Chicago works, Interstate Iron & Steel Co., Chicago, now a part of Republic Steel Corp., has resigned.

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C. J. Edwards, 3304 Eaton tower, Detroit, has been elected president of Wheeler Metal Products Corp., 1637 Collamer avenue, Cleveland, manufacturer of metal stampings, automobile parts, etc.

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W. A. Roberts, formerly vice president, I. G. Haug & Sons, Regina, Sask., distributors of tractors, farm implements and automobiles, has been appointed agricultural sales manager, tractor division, Allis-Chalmers Mfg. Co., Milwaukee.

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Harry T. Gilbert, who as noted in last week's issue of STEEL was appointed assistant to T. M. Girdler, president, Republic Steel Corp., Youngstown, O., has removed his headquarters from that city to Union Trust building, Cleveland.

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B. H. MacNeal, who has been with the Link-Belt Co., Chicago, both in the plant and in the field, for a number of years, has been appointed southern district manager of its crane, shovel and dragline division. His headquarters will be at the company's Birmingham, Ala., office.

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Eugene Tetzlaff, vice president and director, General Bronze Corp., has been placed in charge of the western division, with headquarters in Chicago, and will supervise its three plants in Chicago, Milwaukee and Minneapolis. He was president of Flour City Ornamental Iron Co., Minneapolis, which was merged with General Bronze Corp. last year. The Milwaukee plant formerly was known as Wisconsin Ornamental Iron & Bronze Co.

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W. A. Nugent, manager of the St. Louis office, Independent Pneumatic Tool Co., 600 West Jackson boulevard, Chicago, has been transferred to Chicago as Chicago territory manager.

F. J. Passino, manager of the Pittsburgh office, has been transferred to St. Louis to succeed Mr. Nugent.

T. J. Clancy, formerly of the Cleveland office, has been transferred to Pittsburgh as manager of the Pittsburgh territory.

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T. A. Maloney, formerly superintendent of wheel and gray iron foundries, Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill., has resigned to become affiliated with the sales and service department, St. Louis Gas & Coke Corp., St. Louis. He was graduated from Fall River Textile school, Fall River, Mass., in 1918, and then entered Brown university, Providence, R. I., to take a special course in organic chemistry. He became affiliated with the Crompton & Knowles Loom Works, Worcester, Mass., working under the direction

T. A. Maloney

of V. B. Hillman, director of research. He entered the employ of the Mt. Vernon Car Mfg. Co. in 1920 as chemist, and in 1926 was promoted to superintendent of wheel and gray iron foundries to succeed the late R. P. Queen.

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George E. J. Pistor, Hay Foundry & Iron Works, New York, treasurer of the American Institute of Steel Construction Inc., New York, returned from Europe Sept. 13 after two months abroad where he addressed and consulted with engineering organizations toward the extension of markets for structural steel.

Mr. Pistor, with Herr Otto von Halem, manager of the advisory committee for promotion of structural steel, Duseldorf, Germany, was a guest of Charles F. Abbott, executive director, and other officers of the American Institute of Steel Construction Inc., at the Engineers club, New York, Sept. 16.

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J. K. Webb, 601 Allen building, Dallas, Tex., has been appointed district sales agent in Texas for the Roller-Smith Co., 233 Broadway, New York.

Obituaries

DOWEN BROOKE, 71, at one time an active partner in the E. & G. Brooke Iron Co., and who retired about six years ago as secretary and treasurer of Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., died Sept. 7. Mr. Brooke was born April 19, 1859. He attended the University of Pennsylvania. His first employment was in the laboratory of the Cambria Iron Co., Johnstown, Pa. He located in Birdsboro in 1881, becoming blast furnace chemist for E. & G. Brooke Iron Co. He later went to Kansas City, Mo., in the employ of Pennsylvania Investment Co., but returned to Birdsboro in 1896, becoming actively identified with all the Brooke interests there. In addition to managing the Brooke Land Co. and Birdsboro Water Co., he became secretary and treasurer of Birdsboro Steel Foundry & Machine Co. until ill health caused his retirement. He also was a director of Pennsylvania Trust Co., Reading, Pa.

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Robert A. Orr, 81, senior member of Robinson & Orr, Pittsburgh, dealers in second-hand locomotives, railroad switches and frogs, died Sept. 13 at Pittsburgh.

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Frank R. Ellis, 85, who recently retired as president of the Shadbolt & Boyd Iron Co., Milwaukee, after an association of 55 years, was fatally injured by an automobile Sept. 5, dying on the following day.

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George E. Klingelhofer, 66, president, Pittsburgh Bridge & Iron Works, Pittsburgh, structural steel fabricator, died Sept. 14. He was a director of the American Institute of Steel Construction and president and director of the Fort Pitt Oil & Paint Co., Pittsburgh.

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Elmer F. Shaw, for many years identified with the foundry industry in Massachusetts and New Hampshire, including the Walker & Pratt Mfg. Co., Watertown, Mass.; Plymouth Iron Foundry, Plymouth, Mass., Lapham Foundry, Kingston, Mass., Highland Foundry, West Roxbury, Mass., and a foundry at Salmon Falls, N. H., died recently.

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Francis Stanley North, 55, president, Union Special Machine Co., Chicago, died Sept. 9 in Boston. He was the son of William Stanley North, founder of the machine company. Mr. North went to Yale university, and was graduated as a mechanical engineer in 1897. After a few years' experience in the East, he returned to Chicago and the machine company there. He became its president in 1913.

Here and There in Industry

FEDERAL-Mogul Corp., Detroit, has acquired the Muzzy-Lyons Co., Detroit, and the Federal Bearing & Bushing Co., of the same city, and has merged them under the name of Federal-Mogul Corp., with headquarters in Detroit. Negotiations also have been completed for acquisition of the Watkins Mfg. Co., Wichita, Kans., an automobile servicing company specializing in rebabbitting connecting rods. During the past year the Federal-Mogul Corp. has completed a foundry and machine shop addition to its Detroit plant and has purchased the Pacific Metal Bearing Co., San Francisco, which now is being operated as the Pacific Coast division of the company.

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Malleable Iron Research institute has moved its offices from 2013 to 708 Union Trust building, Cleveland.

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Industrial Truck association, New York, has moved its offices to 60 East Forty-second street from 52 Vanderbilt avenue.

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St. John X-Ray Service Corp., 505 Fifth avenue, New York, has removed its laboratory to the Eveready building, 30-32 Thomson avenue, Long Island City, N. Y.

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Clark Controller Co., Cleveland, has acquired control of the Sundh Electric Co. Inc., Newark, N. J., through the purchase of common stock, and will continue operation of the Sundh company with no change of name.

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National Armature & Electrical Works, Bluefield, W. Va., has purchased plant and equipment of the Williamson Machine Works, heretofore owned and operated by P. R. Stewart of Williamson, W. Va.

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H. A. Brassert & Co., engineers, Chicago, will supply a 40,000 cubic foot Brassert disintegrator and eliminator, and a high-efficiency hot blast stove lining for the Warren, O., plant of the Republic Steel Corp., Youngstown, O.

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J. G. Brill Co., Philadelphia, electric railway car manufacturer, has entered into an affiliation with Cummings Car & Coach Co., Chicago, following a meeting of the Brill company board of directors at Philadelphia, Sept. 9. Walter J. Cummings, president of the acquired company, becomes director and vice president of the Brill company and will be in Chicago, in charge of the western division.

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Milwaukee Electric Crane & Hoist Corp., Milwaukee, has consolidated its Cleveland office with that of the Harnischfeger Corp., the parent company, at 342 Rockefeller building. M. B. Bradley and W. C. Minier will both be connected with sales.

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S. B. Whistler & Son Inc., Buffalo, machine tool and die manufacturer, has moved into its new building at 752 Military road, that city, having completed a plant 54 x 230 feet. The company formerly was located at 1459 Niagara street, Buffalo.

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Blackman-Hill & Co., St. Louis, jobbers of machine tools, will open a branch machine tool display room at 220 number Denver avenue, Tulsa Okla., Oct. 4, opening day of International Petroleum Exposition at Tulsa. Arlington Nuetzel, treasurer of the company, will be in charge.

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Illinois Steel Co., Chicago, has placed an order for two disintegrators for its Gary, Ind., plant, with H. A. Brassert & Co., consulting engineers, Chicago. This equipment is in addition to a like number of disintegrators for its South Chicago plant which was recently placed with the same company.

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Landis Machine Co. of Canada Ltd., Welland, Ont., has changed its name to the Canadian Landis Machine Co. Ltd. The company makes threading die heads for threading machines, turret lathes and automatic screw machines. Landis threading equipment is sold throughout Canada by Canadian Fairbanks Morse Co.

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Wean Engineering Co., Warren, O., in August completed the installation of 14 continuous radiant gap type pack heating furnaces at the plants of the Michigan Steel Corp., Detroit; American Sheet & Tin Plate Co., Pittsburgh; Seneca Iron & Steel Co., Buffalo; and Gulf States Steel Co., Birmingham, Ala.

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Amplex Mfg. Co., newly formed subsidiary of Chrysler Corp., Detroit, will handle the sale of products other than finished cars and trucks manufactured by the latter company. Among the Amplex company's activities will be sales of Chrysler Oil-rite bronze bearings, industrial motors and marine engines. Offices are located at 7900 Joseph Campau street, Detroit.

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Milwaukee Electric Crane & Hoist Corp., Milwaukee, has booked several important orders including 16 cranes for the car shops of the new independent subway system of New York. The order calls for five 30-ton cranes, one 15-ton, nine 5-ton and one 3-ton unit. New York, New Haven & Hartford has ordered one gantry crane and the Lehigh Valley has purchased three similar units.

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Illinois Zinc Co., Chicago, has taken over the manufacture of extruded battery cups, or dry cells, under an arrangement with the Extruded Metals Corp., a subsidiary of E. W. Bliss Co., Brooklyn, N. Y. Equipment will be removed at once from the Brooklyn plant to that of the Illinois Zinc Co. at Peru, Ill., and pending the change, customers will be supplied from stocks at the Brooklyn warehouse. Extruded Metals Corp. will continue as sales agent for the extruded cups.

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Steel Castings Inc., Sand Springs, Okla., has been chartered with over $30,000 capital to manufacture steel castings by the steel converter method. F. F. Shoemaker is president, and Larry Hinz vice-president and general manager. Both officers are connected with the Tulsa Stove & Foundry Co., with which the new company will be affiliated. An addition to the latter's plant will be built to serve the new concern. It is planned to start production in 90 days.

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R. J. Schwab & Sons Co., 251 Reed street, Milwaukee, which has moved its foundry and furnace and boiler manufacturing plant to Cedar Grove, Wis., where it occupies the enlarged works of the Cedar Grove Stove Co., has disposed of the main portions of the old Milwaukee plant to two local industries which are expanding. The Wisconsin Gear & Engineering Co. has purchased a 2-story building, 40 x 200 feet, and another parcel has been purchased by the Howard Brass & Copper Mfg. Co., formerly at 407 Grove street.

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J. H. Williams & Co., Buffalo, maker of drop forgings and drop forged tools, announces that after Oct. 1 general office and main sales office, exclusive of special drop forgings to order, will be consolidated with present eastern sales office and warehouse at 75 Spring street, New York. This move is being made chiefly in the interest of more frequent contact with customers and closer sales activity concentration. A service department will be retained at Buffalo to represent the sales department at the plant in giving special attention to customers' orders and of the New York and Chicago warehouses.

MIRRORS of MOTORDOM

DETROIT

WILL the automobile industry come back for the remainder of 1930? There may be slight bulges or depressions weekly and monthly between now and the first of the year, but in the absence of anything outstandingly encouraging and with the past's reminder that September usually initiates a successive monthly decline, the trend for the next three and a half months should be slightly downward.

Ford is slowing down, Chevrolet will probably not be in assembly production on its 1930 model for another month, and Buick's output is shrinking. September's total in cars and trucks may shade the 250,000 models that August recorded.

More and more is Detroit peering over the Jan. 1, 1931, horizon for encouragement, seeing in the spring of next year the needed impetus to step up production. If history repeats itself, the first four months of the year, climaxed in April and May, should bear out that this quarter paves the production total for the year.

Auto World Slow Joining Optimistic Industry

Now, Detroit in the doldrums does not feel the generally poised position of industry outside and the signs of improvement it occasionally manifests.

With the exception of the poorer classes, hardest hit by unemployment, the ready cash position of most of the consuming public is good, yet for reasons perhaps largely psychological they will not spend. There are too many people looking for bargains. People are not spending their ready cash as they did last year when they had the cushion of large paper profits.

And so the automobile industry is affected. The rest of the year will be one for the sale of cheaper price cars only.

Next year we will see production still regulated closer to retail demand, and at this perhaps early date for forecasts it is safe to say that replacements, for one thing, cannot be held in abeyance as they have this year.

Ford Monthly Rate Tapers; His Steelworks Still Closed

Ford continues the leader of the pack, though his production rate is slackening.

For September 100,000 units are scheduled, but with the daily rate varying from approximately 5100 to 5600, more likely will the current month show nearer 80,000 models turned out at Fordson. October looms slightly downward with about 65,000 scheduled.

The Fordson plant continues to have a large inventory and in particular large amounts of stainless grades of sheets and strip.

The Ford open-hearths and rolling mills, down the latter part of August for two weeks and expected to resume Sept. 9, still are quiet and now will not resume until Sept. 22. Consequently, business in varying quantity is being placed outside of Ford mills.

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Ford models for the rest of this year, at least, will show no major revisions from existing Model A. Changes will confine themselves at most to slight mechanical alterations. Ford distributors are specifying into October but beyond that rises a rumor that the Ford plant may close down in early winter, beginning in November, for a five or six weeks period.

Production continues on the 4-day week in effect since the three week closing this summer. The office forces are now being paid on a 4-day week basis as well.

Ford's light truck business is the brightest spot in the picture. Around 7000 weekly are being made. Daily production of all models runs slightly under 5500 units.

Ford's recent purchase of machinery in the East leads to the supposition that the equipment may be going to Detroit—more likely, however, it will find its way to Ford assembly plants in England or Italy. Inquiries are out, nonetheless, for equipment to build some Ford parts at Fordson that have been farmed out in the past.

Henry Ford, on recently sailing for Europe, predicted an early end of the business depression, saying it might outlast October but that no wage reduction was necessary for return to normal business.

The Mathis, Durant's importation from France, will compete with both Austin and Ford. Though 15 inches longer wheelbase than the Austin, Detroit places it in the "bantam" field.

Production has been delayed and the first ones may not be on the market Dec. 1 as originally announced. The Lansing plant of Durant is resuming, with the Durant coming off the lines.

Parts have been ordered for production of a small number of Mathis units, and Continental Motors has an order for 500 engines. Just where assembly will take place is a speculation. Some say the west coast where Durant models have enjoyed popularity and the Oakland, Calif., plant will be the scene of this activity.

New Cadillac-LaSalles Will Swell Year's Total Little

The month's new model is the new Cadillac-LaSalle 8. But, with only 3000 units for the entire Cadillac division scheduled to be turned out in September, too much strength must not be lent them to swell the auto aggregate.

The new 8's approach identical appearance. Each of 134-inch wheelbase incorporates the mesh radiator screens of chromium plate that the Cadillac 16 has as its standard equipment.

Both LaSalle and Cadillac have lost some of their distinctiveness. While still of beautiful appearance, nevertheless LaSalle for one, in changing over

from the individualistic style it created several years back and which others imitated, has completely thrown overboard many features. With its prices reduced $245 to $750, LaSalle now has a range from $2195 to $3245.

Cadillac, too, down $600 to $900 from last year's price, sells at the lowest in twelve years. The price range of the Cadillac and LaSalle 8's and the Cadillac 16 now start at $2195 and end at $15,000. And the LaSalle now at its reduced rate directly competes with the largest Buick 132-inch wheelbase job.

Both new 8's are offered in a variety of body models: ten for the Cadillac and 12 in the LaSalle model.

Chrome plating is the keynote of both and beginning with the radiator cover of chromium-plated screen to the tail-light there is a superabundance of the shining metal. The Cadillac continues with large headlights, though of special design, chromium plated, and on special chrome uprights.

For September, Cadillac will turn out 1500 jobs, LaSalle slightly less, and approximately 100 models by the 16-cylinder Cadillac division.

Marmon at Indianapolis, holding its 16-cylinder model back for many years, is rumored to plan appearance at the January shows. Possibly Cadillac's success and popularity with the same type has had something to do with the decision. The Marmon 16 is reported to be a straight line motor.

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Cadillac brings out its 12 early in October.

In 140 and 143-inch wheelbases the new car is heralded with many of the features of its Cadillac brothers. Body shells will be the same as the Cadillac 8, the chromium radiator mesh will be again apparent, several body contours will imitate the Cadillac 16. Ten body styles will be made.

It has been almost eight years since a 12 has been in the automobile production picture. Packard produced a 12 until 1922, and others have been the Haynes, Austin, Pathfinder, National, Cole and Hal in times long past.

Where the new 12 fits into the Cadillac-LaSalle division of General Motors is a question Detroit is asking. And will two 8's be in existence a year hence?

Does Auto Output History Always Repeat Itself?

Auto production for the past nine years over which records have been compiled by the United States department of commerce show that September totals with but two exception has begun a successive monthly decline which increased until the first of the year.

Only in 1924 and 1925 has September shown a gain over August; 1925 showed a remarkable bulge when September was not only higher than August but October was materially higher than September.

Equipment, tool and die work can be expected in October as in the past, for this is the month of retooling, getting ready for next year's work.

Sheet makers in the district are not optimistic. Not only did Newton Steel Co. fail to resume operations at Monroe Sept. 8, as some thought, but Michigan Steel Corp. runs little better than 50 per cent of capacity. Other sheet makers who lean heavily on auto work are not cheerful over the balance of the year.

Industrial plant equipment makers are hard hit right now. Detroit is tooled up for 6,000,000 cars a year, as a result of the 1929 expansion and this year will be indeed lucky to top the 3,750,000 mark. The depression of 1921 was different, when coming out of the woods Detroit had only the background of a yearly output of 4,000,000 cars.

Reo 8 Scheduled To Be Announced in October

By Oct. 12 Reo will have its new 8 on the market, in a higher priced field than Reo ever has been. Dealers already are ordering, having witnessed the new models at private showings at Lansing.

The new bodies with their striking streamline effect are being made by Murray, which is doing only the stamping and rough assembly work. Then the job is sent to Lansing, where the upholstery and painting is done. This is a new wrinkle in body production.

More that points to Reo rounding out its production facilities or for a sale lies in the 3-year common stock voting trust that incorporates power in a few for quick action without stockholders' consultation. Just how many stockholders entered this arrangement last year and just how much the W. R. Wilson group now managing there now controls, is another question.

But many in Detroit think Reo is due for an affiliation.

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Hudson-Essex is just barely staying in production until the new models come out, possibly in November.

The new jobs will incorporate more power. Some of the new body work is being divided between Murray and Briggs.

Hudson will get back to its own parts. Hudson owners have not liked the idea of having interchangeable parts with the smaller Essex.

Oakland-Pontiac division is specifying in good quantity. Sales have been rising. There is the maker's promise of a new model this winter, explaining the price cuts of recent date, although no material changes are in line. September's rate points to about 6500 cars, five-sixths of which will be Pontiacs.

Hupmobile, after vacation, is back at work.

Buick, lined up for 14,000 units this month, reported production of 20,000 cars in August and actual sales of 17,000. With capacity of around 25,000 cars monthly, September output will be at 60 per cent of capacity.

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Chrysler, at 18,000 units delivered in August, announced production of 14 per cent of the country's cars, exclusive of Ford, in the first half of the year. Its rate may run 1000 daily but Dodge, except for truck business, is quiet and in line for a model change.

Chevrolet, not yet working on its 1931 job, continues to clean house on this year's car. The changeover is affecting the company's production though four days weekly are pretty well maintained and around 2000 jobs daily are assembled.

In line with the closing down of manufacturing units, the motor plant at Flint was closed for two weeks beginning Sept. 9.

The Saginaw Steering Gear division of General Motors expects to manuture all the steering gears used by Chevrolet for its 1931 production. New equipment has been purchased to the amount of $250,000.

The Chevrolet management is purchasing heavily, has been specifying parts on the new unit for some time and is set to bring out the 1931 edition in thirty days after production starts. Detroit looks for an announcement in November or slightly earlier, instead of delay until the January shows.

Throwbacks of Reduced Operations Creep In

The automotive industry is cutting down on expense.

Whereas in prosperity a telephone and telegram did the trick quicker, nothing more than a 2-cent stamp is being spent now. Not now is the Detroit automobile maker rushing things through by reaching for a long-distance phone—the letter takes its place.

Detroit feels the effect of competitive wages, too. Office staffs are experiencing salary reductions. The Ford office force is on reduced pay. Chrysler inaugurated a second 10 per cent salary cut, and some manufacturers dependent on automobile work as Murray paying for three weeks a month, are typical. Laborers, in many cases destitute, are taking jobs at under schedule rates because help is so plentiful and work so scarce. Able to support themselves now with small gardens, the unemployed, as others bound up in Detroit's destiny, fear a depression tiding over the coming winter.

EDITORIAL

War on Discrimination Is Association Job

THANKS to scientific development civilization now enjoys a broad latitude in the choice of materials to suit its increasingly exacting requirements. For almost every style of architecture, for every type of construction and for practically every character of manufactured article, the designer is offered not one but many materials from which he can select the one which in his opinion will best serve his purpose. Likewise, the contractors, machinery builders, manufacturers and others who work from the designers' drawings also have the choice of numerous processes and methods which are applicable to their tasks.

This optional use of materials, processes and methods is one of the most important assets of this age. It provides incentive for ingenuity in design and construction, stimulates competition and makes for rapid progress in every branch of the applied arts. No person in his right senses would advocate a step that would take us back a century to the time when human initiative was starved by the scarcity of engineering materials and the paucity of technical knowledge.

Nevertheless there are individuals who apparently do not appreciate the boon afforded by the availability of optional materials and methods. If the truth were known, modern industry is witness to many incidents wherein efforts are made to stifle competition by unduly favoring a single material, product or method of doing work.

Motives Not Always Above Suspicion

It is not uncommon for state, county or municipal authorities to phrase specifications to exclude all but one material. In many cases this is done honestly, with the intent of keeping out inferior materials. But in far too many instances the action is dictated by less honorable impulses and involves discrimination against superior materials.

Not long ago a situation existed in an eastern industrial state which practically closed the door to structural steel for the construction of short-span highway bridges. Public officials contrived to write specifications in such a way that only one material—a competitor of steel—could be used.

Less than a year ago one of the departments of the United States government invited bids for a certain machine. When American builders examined the specifications, they found they obviously were written with the intent of favoring a foreign-built machine. Had this machine possessed unusual features or had it represented a marked advantage in cost, the tactics of the government would have been understandable. But the foreign machine was in no way superior to several available American models and the cost was only a few dollars less.

Specifications Shut Out Good Products

In an article beginning on page 23 of this issue, which deals with negligence of public officials in connection with bridge and highway guard rails, attention is called to a case of unwarranted discrimination against steel. In a community which has been visited by an unusually large number of accidents caused by inadequate bridge and viaduct railings, public officials recently issued specifications which exclude steel in any form from certain parts in new railings. The incident is of special significance because the discriminatory action of the municipal authorities deprives the citizens of the community of the advantages offered by three or four steel products, any one of which would permit the construction of a safer railing than can be built of the material which is protected by the prejudicial specifications.

Many similar instances could be cited to show how discrimination is employed by office holders. It is the duty of the leaders of an industry whose product is shut out by these tactics to collectively wage a campaign against the offending practices.

When steel is arbitrarily excluded from public work to which it is adapted, the organization most directly interested in the product involved should investigate the situation immediately. In many cases a frank talk with public officials is all that is necessary to correct a bad situation. Sometimes, when political arrogance runs high, it is necessary to present the facts to the people and to rely on enraged public opinion to effect the desired house cleaning.

This type of work cannot be handled effectively by an individual company. It is a job for trade associations. And it is of extreme importance, because constructive selling of any product cannot begin until every trace of prejudice against it has been swept away.

First-Half Net Profits of Steel Producers Match Average for All Industries

LAST week we presented a brief analysis of the net profits of steel companies for the first six months of 1930 and compared them with corresponding data for 1929. Just after our Sept. 11 issue went to press we received a bulletin from Ernst & Ernst, accountants and auditors, containing a similar study of the profits of 851 companies, including 480 industrials, 172 railroads, 104 telephone companies and 95 other public utilities.

The Ernst & Ernst analysis affords an opportunity to compare the profits of steel producers and steel consumers with those of companies engaged in other industrial pursuits.

Net profits in the first half of 1930 for the 480 industrials were 31.61 per cent less than the total for the first six months of 1929. This percentage, which may be accepted as a fairly accurate average for all industry, is only slightly below the corresponding figure for 22 producers of steel and iron—32.34 per cent. The near agreement of these two percentages is not surprising in view of the thorough manner in which the basic material steel permeates all industry. It emphasizes the close relationship between the steel industry and the major manufacturing groups.

Showing of Steel Companies Better Than That of Many Consumers

Other significant comparisons can be made from the data in the accompanying table, which has been reconstructed from the Ernst & Ernst report. For instance, definite support is given by these figures to the statements made last week in this column to the effect that the steel producers fared much better than their best customers. Against steel's reduction of 32.34 per cent in profits are shrinkages of 48.81 per cent for automobile manufacturers, 44.95 for makers of automobile accessories and parts, and 106.90 per cent for manufacturers of tires and rubber goods. These three percentages show how seriously the depression has cut into the profits of the motor car industry.

Last week we intimated that the railway equipment companies had fared very well, considering the plight of the railroads. This view is substantiated by the Ernst & Ernst figures, which show that the profits of 10 companies in that field fell only 5.82 per cent under those for the first half of the previous year.

The showing of the 35 companies in the "machinery and tools" group is gratifying. The reduction in profits was only 14.17 per cent and 11 of the 35 establishments reported better profits in 1930 than in 1929 for the six months under review. It is probable that the net profits of some of the heavy machinery companies, which have been unusually good, offset the generally reduced profits of machine tool builders.

Makers of electrical household equipment suffered a sharp curtailment of profit-taking. The drop of 63.79 per cent reflects the effect of hard times on the mass purchasing power of the nation. Sewing machines, refrigerators, washing machines, etc., are distributed more uniformly throughout the nation than any expensive manufactured product with the exception of automobiles. The figure for electrical household equipment probably is a better indicator of the reduced buying power of the ultimate consumers of manufactured articles than any other in the accompanying tabulation.

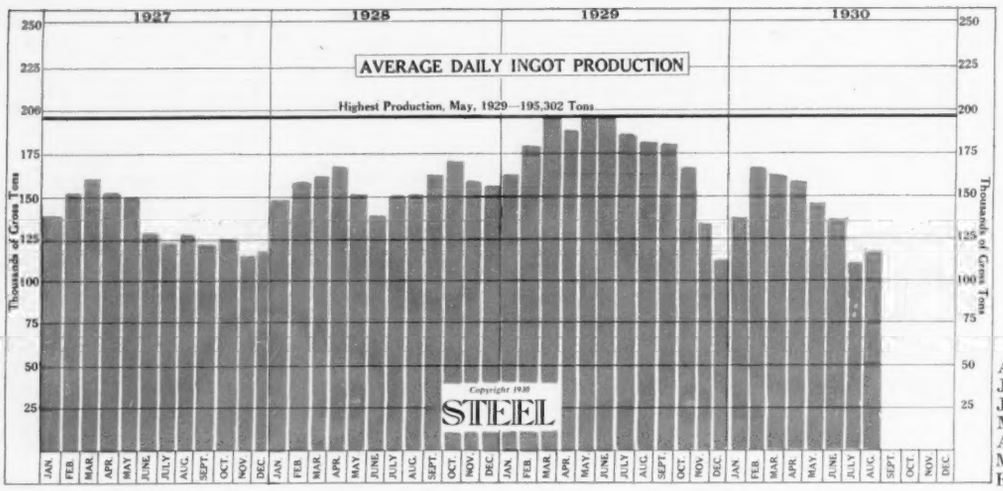
Profits for First Half, 1930, Compared With Those of First Half, 1929

	Number of companies reporting	Number reporting increased profits	Number reporting decreased profits	Per cent decrease in profits of all companies
Automobile manufacturers	17	1	16	48.81
Automobile parts and accessories	36	1	35	44.95
Building supplies	20	5	15	24.78
Business equipment	10	3	7	27.39
Chemicals	16	2	14	19.31
Coal mining	9	3	6	33.12
Electrical household equipment	8	1	7	63.79
Steel and iron	22	3	19	32.34
Machinery and tools	35	11	24	14.17
Metal products—sundry	32	8	24	40.26
Mining and smelting	26	2	24	60.97
Oil production and refinery	37	13	24	27.13
Railroad equipment	10	4	6	5.82
Textiles	11	4	7	*
Tire and rubber companies	5	0	5	106.90
Total industrials**	480	141	339	31.61

*Percentage omitted because of large fluctuation.

**Includes many groups not included above, such as amusements, bakeries, cigars, clothing, merchandising, etc.

THE BUSINESS TREND



1929	
Aug.	182,491
July	186,561
June	196,118
May	195,787
Apr.	190,387
Mar.	194,930
Feb.	180,363

1930	
Aug.	119,050
July	112,823
June	137,610
May	149,066
Apr.	159,764
Mar.	165,381
Feb.	169,930

Business Sky Brighter, But Clouds Remain

MID-September finds the business outlook brighter, but the sky is not yet free of clouds. Sentiment in industry is improved, but now as in the past undue optimism and unwarranted pessimism is to be found in many quarters. Much of the discouragement encountered among business men is due not to actual business conditions but to the fact that recovery is not as rapid as the majority of business men hoped it would be.

It now seems reasonable to expect a slow, steady improvement with no sharp or dramatic acceleration for six months or more. If those optimists who have been expecting a miraculous vertical upturn in the fall of 1930 could modify their expectations to conform with the belief that improvement will be gradual, much needless fret and worry will be avoided. This philosophy has many obvious advantages.

Production, Freight Traffic, etc. Gains Are Largely Seasonal

Evidence that business took a turn for the better in August now is sufficiently abundant to be convincing. Increase in the daily average production of steel ingots, representing the first interruption to a steady decline that has continued since last February, is concrete testimony which outweighs the rather discouraging sharp drop in unfilled bookings of the United States Steel Corp. as of Aug. 31.

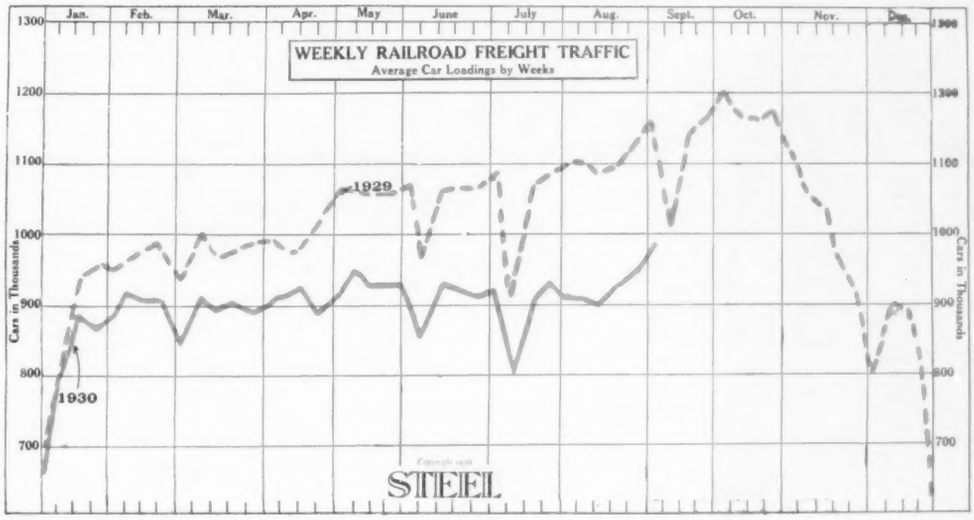
Other favorable indications are the consistent gains in freight car loadings. The increase for three consecutive weeks in August was fully up to seasonal requirements, if not slightly in excess of them. The output of bituminous and anthracite coal was stepped up moderately during the last few weeks of August.

Among the disappointing features of the business situation is the reluctance of the automobile industry to come out of its slump. Many of the companies which increased production in August and in early September, cut their schedules sharply in the week ending Sept. 13. However, there is considerable satisfaction in the thought that the motor car builders are not manufacturing in excess of sales.

Trend of Steel Prices Lags Behind That of Many Commodities

While commodity prices seem to have turned the corner, quotations of steel and iron products continue downward. Irving Fisher's index has registered feeble gains for two consecutive weeks, and several other barometers of wholesale prices are pointing upward instead of downward. Meantime Steel's composite of 14 steel and iron products has dropped to $32.68. The average for the month of August was $32.99 and for June $33.53. The lag of steel prices behind those of many other commodities is not unexpected, but the continued weakness in the steel market is the source of some uneasiness. A determined effort is being made to halt the decline of prices, and in this test which now is in progress, much depends on the demand for steel which develops during the next few weeks. Even a slight expansion of orders might be sufficient to give impetus to stiffening prices.

In the main, the favorable factors in the general business situation outweigh the unfavorable ones. But as stated previously in this column, we must expect false starts and relapses before we set foot to the smooth high road of uninterrupted recovery.



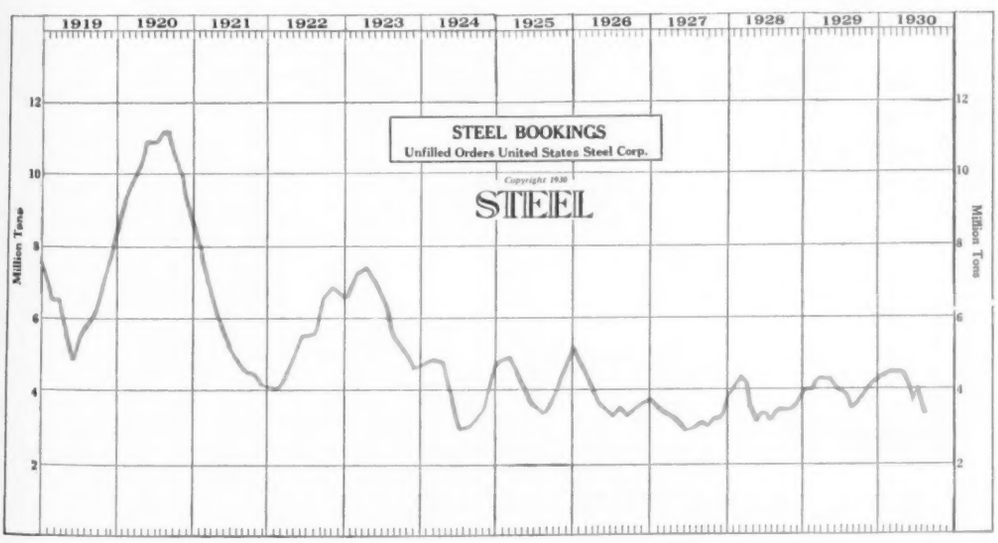
1930	
August 30	984,504
August 23	940,549
August 16	922,823
August 9	904,157
August 2	918,335
July 26	919,349
1929	
August 23	1,137,966
August 30	.....
August 16	1,102,567
August 9	1,092,153
August 2	1,105,920
July 26	1,102,553

Gains Carry Revenue Freight Loadings Almost To Million Mark

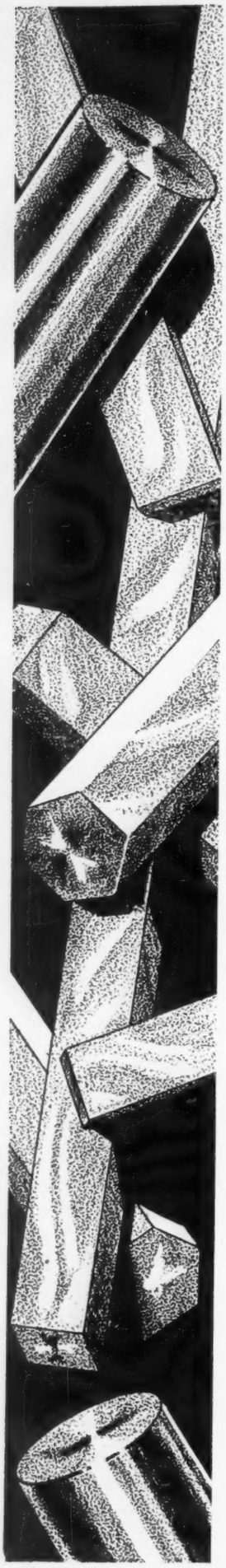
Revenue freight car loadings during the past few weeks of August established new high records for the year 1930, although continuing well below last year's totals. Following a relapse in late July and early August the weekly loadings have increased for three consecutive weeks. For the week ending Aug. 30 the total was 984,504, the nearest to the one-million mark in any week this year. Loadings in the first week of September will reflect the Labor day week-end of inactivity and it will remain for the mid weeks of the current month to show whether or not the fine spurt of late August will be continued.

Unfilled Orders of U. S. Steel Corporation Show Sharp Reduction

Report of unfilled orders of the United States Steel Corp., coming on the heels of the favorable but moderate upturn in the August rate of steel ingot production, was disappointing. It will be recalled that unfilled tonnage dropped gradually last summer to a low point in August, from which it climbed by easy steps to a high point in March of this year. From that peak it declined until July when it turned upward slightly. Therefore the drop of 441,851 tons in August to a level of 3,580,204 tons on Aug. 31 was more drastic than generally expected. In five of the last nine years unfilled bookings have increased in August.



1930	Tons
August	3,580,204
July	4,022,055
June	3,968,064
1929	
August	3,658,211
July	4,088,177
June	4,256,910



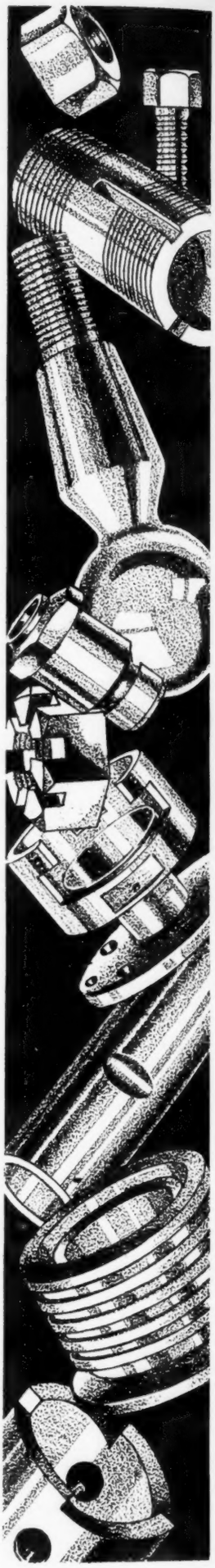
This is Number Four of a Series of Advertisements

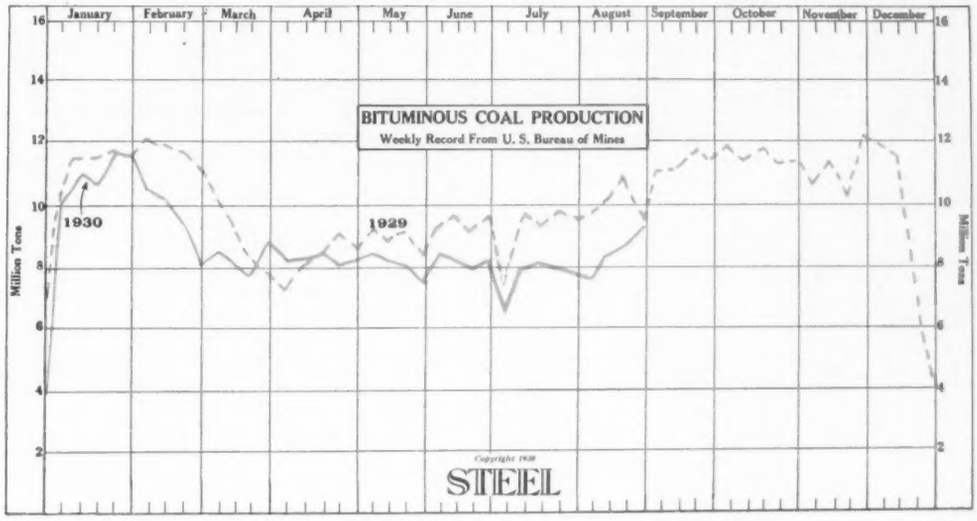
THE COLD FINISHED STEEL BAR INDUSTRY BUYS SCALE AND SCRAP—BUT DOESN'T SELL IT

COLD FINISHED STEEL BARS—completely descaled, finished to narrow tolerances, unvarying in cross-section—have the microscopic precision and perfection essential to efficient automatic screw machine production. All operations and technique employed in cold finishing are essential steps in preparing the steel for automatic screw machine use; steps that accomplish things, which, if lacking, would result in decreased production, inaccurate work, shorter tool life, increased maintenance costs, etc.

"The Rapid Duplication of Machined Steel Parts at Lowest Cost Continues to Depend Upon That Perfection and Precision Which Only the Cold Finishing Processes Can Give"

THE COLD FINISHED STEEL BAR INDUSTRY





Million tons

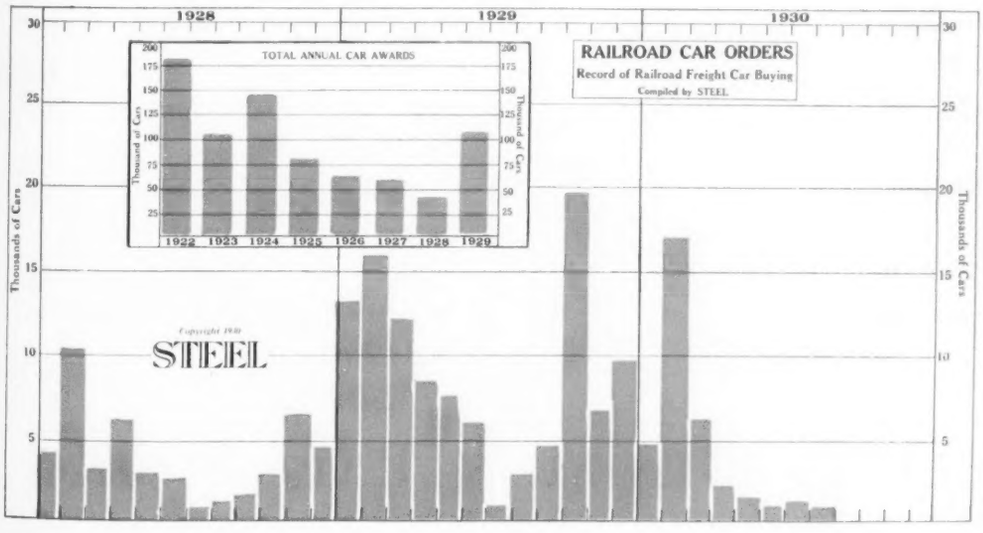
	1930	1929
July	34,634	41,175
June	33,714	38,580
May	35,954	40,706
April	35,860	37,380
March	35,773	39,870
February	39,555	47,910

Output of Bituminous Coal Responds To Seasonal Increase in Demand

Production of bituminous coal is rising in accordance with the usual seasonal trend. Throughout June, July and the early part of August the weekly output remained rather consistent at figures ranging from six and a half to eight million tons. During the week of Aug. 23 the total rose to 8,494,000 tons and in the week ending Aug. 30 the output exceeded nine million tons. Due to the interruption of Labor day the production in the week ending Sept. 6 dropped to about eight million tons. The total for this year today is about forty million tons below that of the corresponding period last year.

Bookings of Railroad Cars in August Drop Below July Total

Following a pleasing increase in July, domestic bookings of freight cars in August dropped to 1070. With current demand continuing slack, it now appears that the figure of 1348 awards in July may be considered as an interruption in the downward trend which has been in evidence since February, when awards to the extraordinary total of 17,027 were recorded. The total for eight months in 1930 is 35,022, compared with 66,011 in the corresponding period of 1929 and 28,916 in 1928. In 1929 October proved to be an unusual month for car awards, 19,506 having been booked in that record month.



	1930	1929
August	1,070	2,854
July	1,348	341
June	998	5,886
May	1,392	7,562
Apr.	1,997	8,205
Mar.	6,118	12,023
Feb.	17,027	15,944

"Report for the Week Ending——"

If this were the name of your business paper you would keep it in the VAULT.

IN your morning's mail are two packages. One is sealed and stamped and registered. You open it, revealing twenty typed pages, bound in blue and tied with tape. It is a report specially compiled for you and it cost $500. You read it with a sense of its urgent importance and place it in the vault for safe keeping.

The other package comes in a second-class wrapper. You open it, revealing a familiar cover and a familiar name. It is the current copy of your business paper, published for you and for thousands of others in your industry, and its cost to you is just about the price of a good cigar.

Yet between the familiar covers of this paper is a weekly or a monthly report that may well be more important to you than the carefully guarded typed and blue-bound manuscript.

For here is a report gathered from a thousand sources that you could never penetrate. Here is a report compiled by a staff of experts you could not possibly afford to employ. Here are the plans and practices of others in your business or industry. Here are new methods that cut costs, speed sales, increase profits. Here are hints of new markets and new merchandise. Here, in the crisp—ready to use, ready to apply to your needs, are facts you want to know—when you want to know them.

Stop! Look at your business paper again. Do not judge it by its price. Only the fact that you share it with others brings it to you at a fraction of its worth.

Judge it by its true character — a complete, current, *indispensable* special business report — immediately helpful to you.

THIS SYMBOL *identifies an ABP paper . . . It stands for honest, known, paid circulation; straightforward business methods, and editorial standards that insure reader interest . . . These are the factors that make a valuable advertising medium.*

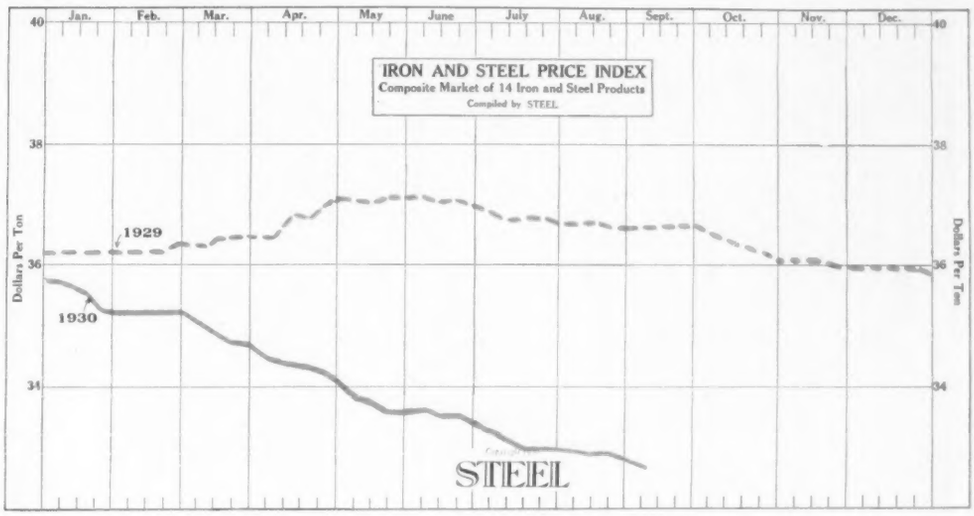
THE ASSOCIATED BUSINESS PAPERS, INC.
TWO-NINETY-FIVE MADISON AVENUE · NEW YORK
124-X

Weekly Figures

Sept. 10	$32.68
Sept. 3	32.78
August 27	32.88
August 20	33.00
August 13	33.00
August 6	33.08

Monthly Averages

August, 1930	$32.99
July, 1930	33.21
June, 1930	33.53
August, 1929	36.54



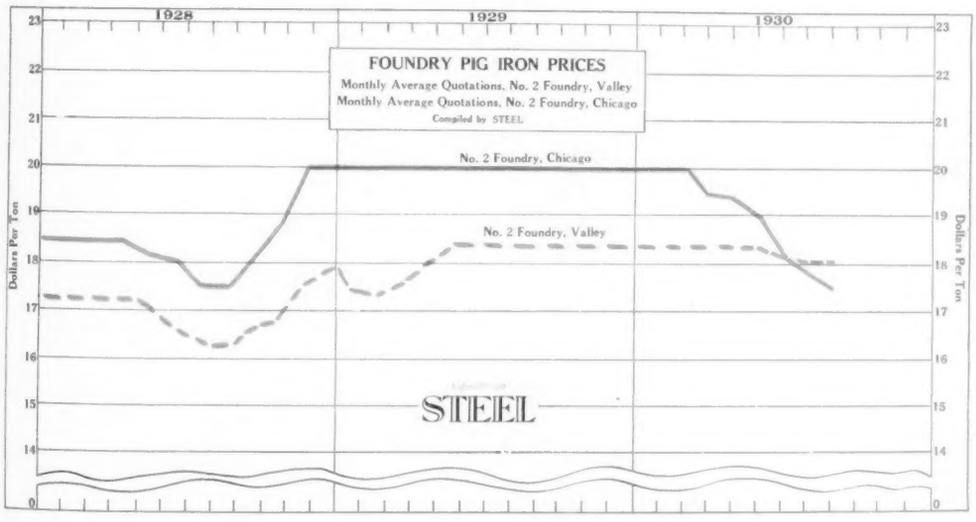
Steel's Composite of Prices Dips; Quotations Face Test

Quotations of steel prices still are tending downward. Steel's composite on Sept. 10 stood at $32.68, it having declined several times from the average of $32.99 for all of August. In the meantime commodity prices in general have reached a turning point and several of the numerous wholesale price index have turned upward.

Steel and iron prices are due for a test which may determine the price situation during the remainder of the year. A number of steel producers are attempting to resist further declines. The next few weeks should decide whether the turn will be delayed or whether gradually increasing firmness may be expected.

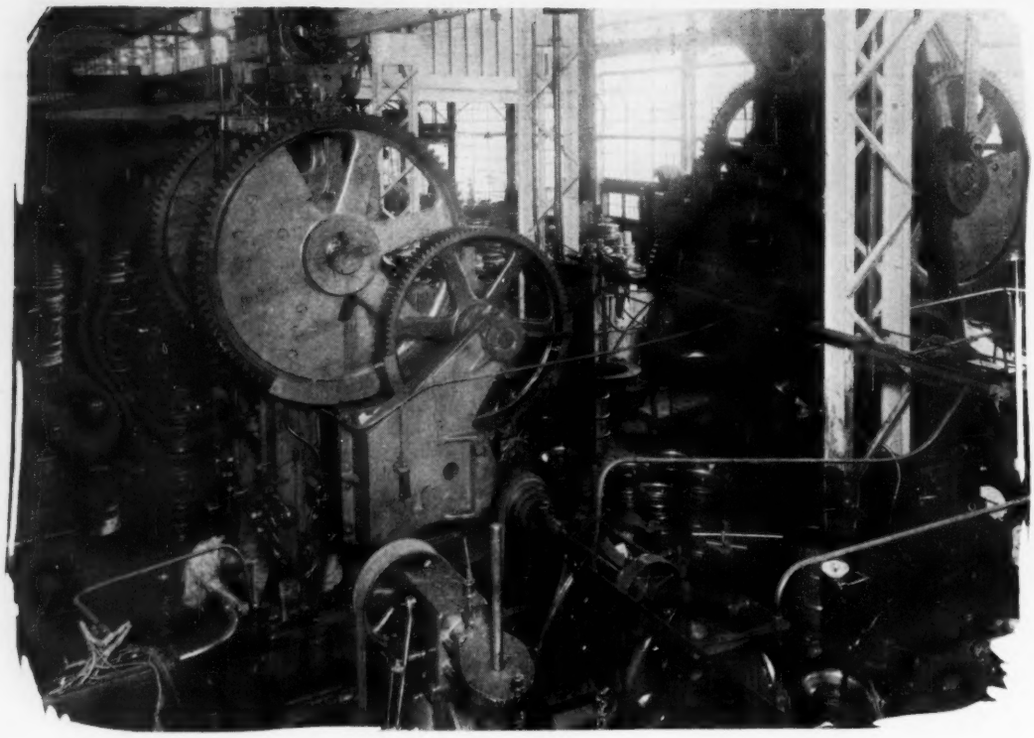
Foundry Iron Prices Continue Weak; Fewer Stacks in Blast

Quotations of No. 2 foundry iron have not changed sharply during the past month. Chicago iron developed some weakness, which carried the average for August down to $17.50. In the meantime valley quotations remained at their July average of $18.00. Thus far in September no signs of definite strength have appeared. On the contrary, weakness is still in evidence, indicating that the expected stabilization point will not be reached for a least a few weeks. The number of stacks in blast is extremely small, several furnaces having been banked since the Aug. 31 total of 137 active stocks was reported. Activity must await improvement in general business conditions.

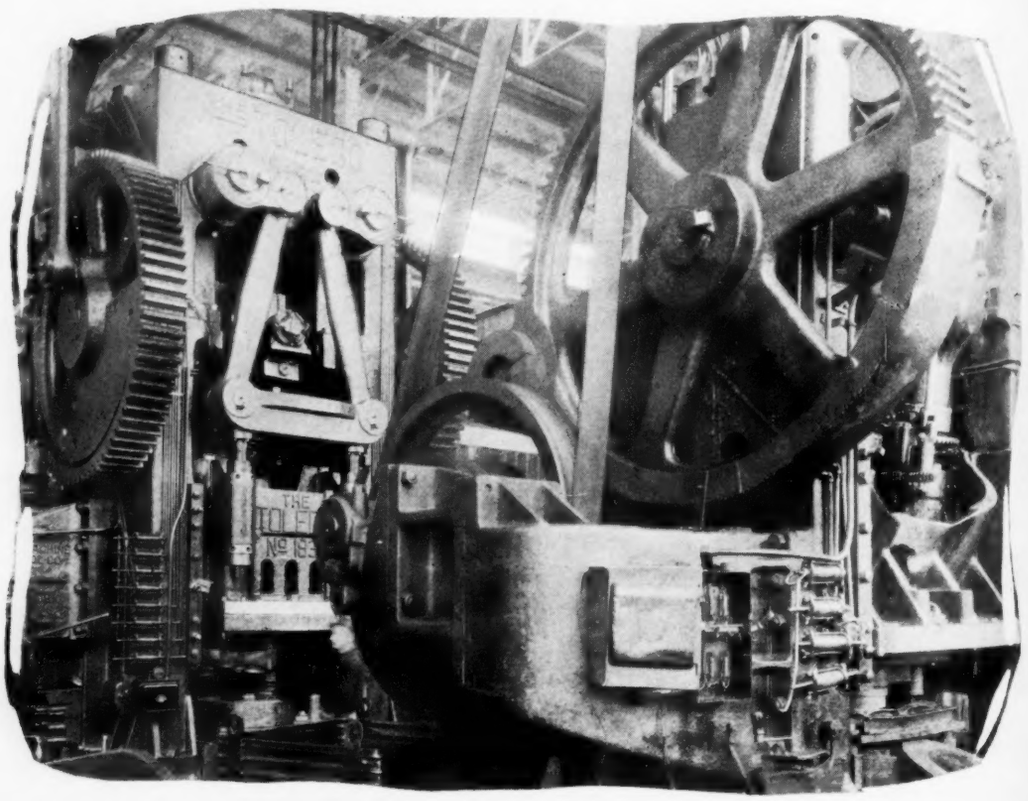


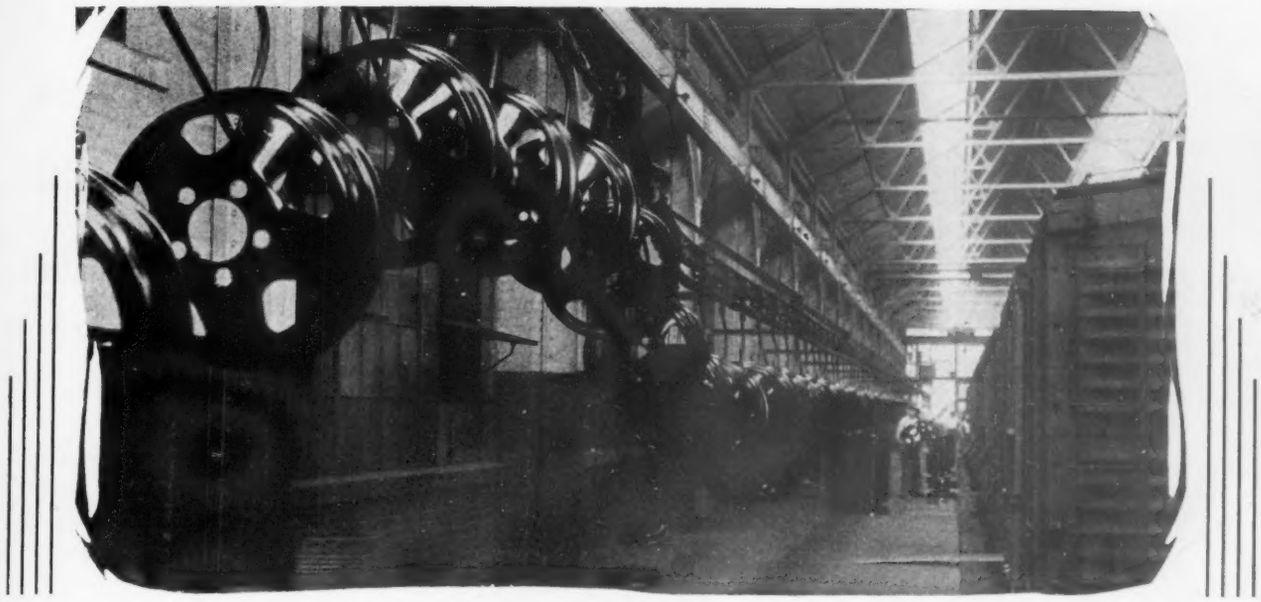
Monthly Averages

	No. 2 Foundry Chicago	Valley
Aug., 1930	$17.50	$18.00
July, 1930	17.90	18.00
June, 1930	18.37	18.37
May, 1930	19.00	18.50
July, 1929	20.00	18.50



PRESSES of unusual proportions are employed in forming heavy disk wheels for motor trucks. Above is a general view of the heavy press department. Below is a closeup of two large presses which pierce the center hole and carry out the first forming operation on the heavy disks





Shipping platform showing monorail conveyor and method of transporting finished disk wheels to the loading dock

Mass Production of Disk and Wire Type Auto Wheels

Automatic Press Line at Budd Company Plant Is Equipped To Turn out 25,000 Truck Dual Disk Wheels Daily

BY A. H. ALLEN
Editorial Representative, STEEL

BY FAR the greater percentage of automobile wheels, taking into consideration both truck and passenger cars, is of either the disk or wire type. With the 1929 production of motor cars roughly 5,300,000, and estimating that 70 per cent of these cars were equipped with wheels of one or the other of these types, it is seen that approximately 15,000,000 metal wheels were produced during the record year. This does not take into consideration, of course, the fact that most trucks are equipped with steel wheels single front and dual rear, thereby taking 6 wheels per unit instead of the custmary 4; also that large motor trucks often are equipped with trailer installations frequently having as high as 22 wheels.

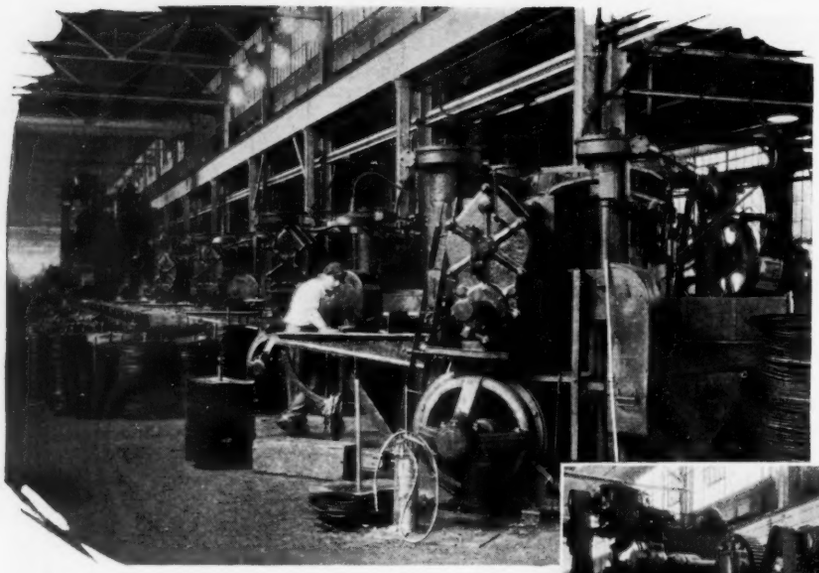
Regardless of the exact number of wheels produced, these figures demonstrate that metal wheel manufacturers absorb good percentage of annual steel production. A large producer of automobile wheels is Budd Wheel Co., Detroit and Philadelphia. This company manufactures both disk wheels and wire wheels for truck and passenger cars. Production is estimated to involve 95 per cent of the dual truck wheels and approximately 90 per cent of all truck wheels made in the United States. A capacity of 25,000 truck disk wheels per day is available at the Budd plant, as well as facilities for the manufacture of 20,000 disk wheels for passenger cars per day and 35,000 wire wheels for passenger cars per day, a total capacity of 80,000 wheels.

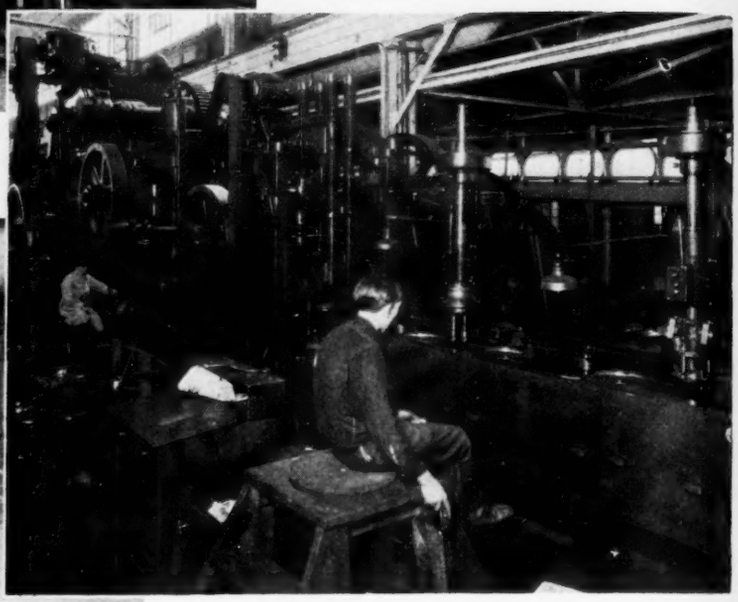
Although these high production figures are not attained day in and day out, the plant is arranged with mobile equipment and a layout which results in making possible any desired expansion without excessive investment other than minor changes. The major equipment is beyond any needs which have been encountered as yet.

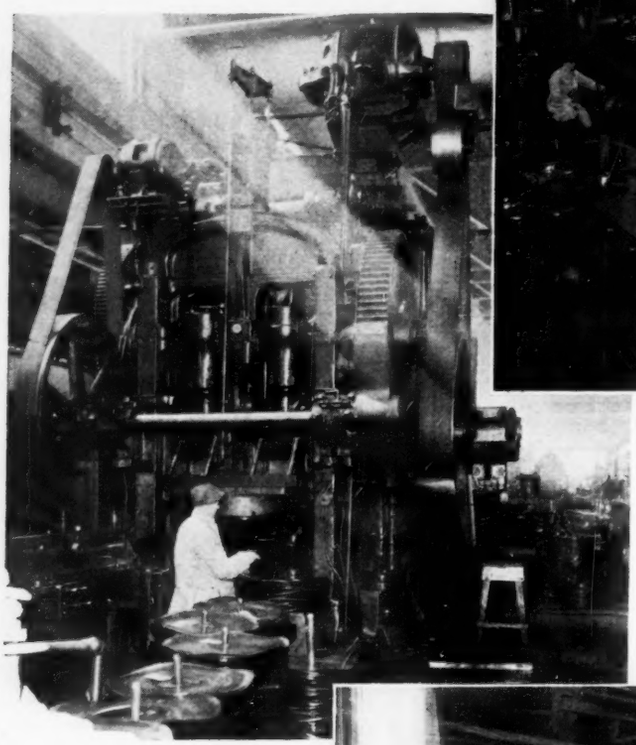
In addition to wheel manufacture the company specializes in brake, drum and hub assemblies for passenger cars. A daily production of 5000 sets, each containing 4 units, has been attained at one time.

The production of so many automobile wheels naturally requires a like number of tire

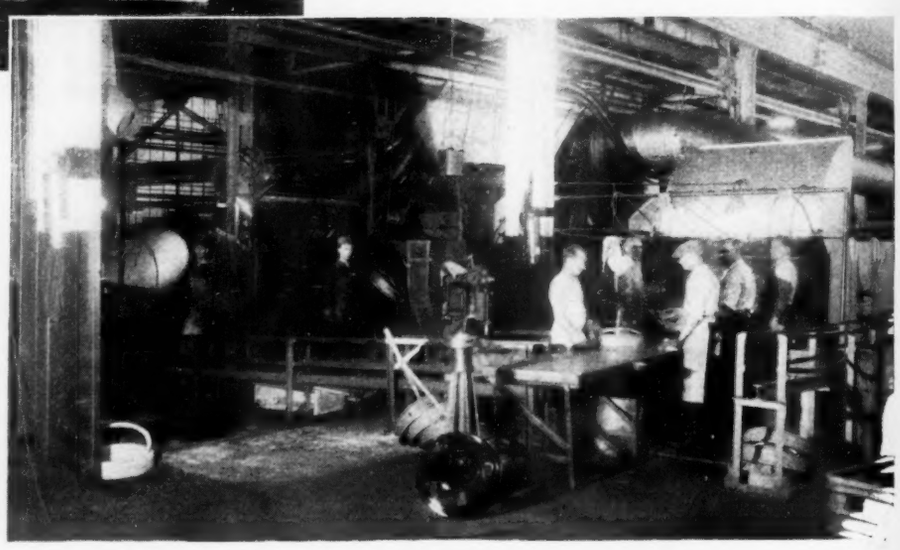
•Automatic Press Lines Roll out 400 Wheels an Hour







ROLLING mills which taper the blanked wheel disks are shown upper left, with the automatic assembly line in the background. Above is shown a closeup of the automatic line for disk wheels; the wheels may be seen in the slide being conveyed through the various forming, punching, reaming and assembling operations



START of the automatic assembly line where the rolled disks are fed by hand into the first forming press, shown above. At the right, disk wheels are shown leaving the washer to oe sprayed with enamel. The charging end of the A-type high-bake continuous enameling oven may be seen in the background

rims and the Budd company, although purchasing some rims, has equipment for the manufacture of continuous welded tire rims, producing as high as 200,000 a month, with tire mounting rings.

The production of this great volume of parts requires unusual speed in receiving material, handling it, and storing of finished parts and shipping. This has been accomplished by efficient location of equipment and the extensive use of conveyors both of the gravity and monorail types. The company is a first source of all materials used and has only the mill beyond it as a supplier of steel.

In production of a new type truck dual wheel, formed and assembled on a recently installed production line, disk stock is blanked from strip steel 18 inches wide and 0.335-inch thick. Standard low-carbon steels are used generally although some experiments have been made with special steels. Five blanks, each with a small center hole, are obtained from each strip. They are stacked on a spindle 12 at a time and the edges turned smooth on a vertical lathe. Each disk is then cold rolled on machines which increase diameter to approximately 22 inches, at the same time tapering from approximately 3/16-inch at center to 1/16-inch at the circumference. This method of tapering improves the structure of the metal through cold working, approximately doubling its strength, and provides excellent surface finish for lacquer.

Proceed to Automatic Line

Cold rolled disks coming from the rolling mills pass next to an automatic line where wheels are completely made except riveting. The automatic line consists of 12 stations which carry the manufacture of the wheels from the raw disk through all machining and finishing operations including assembly in the rim. The automation provides for two men operating the line, a feeder at the forming press and one operator in control of the chain of stations. Edges are trimmed, hand holes stamped out, and the final wheel shape formed. At a certain point in this process rims, descending on a gravity conveyor, meet the disks which are pressed into the rims and the entire unit restruck in a press. The valve hole is punched and the wheel turned edgewise onto a gravity conveyor on which it rolls to a battery of automatic riveters. The automatic line delivers 400 wheels per hour.

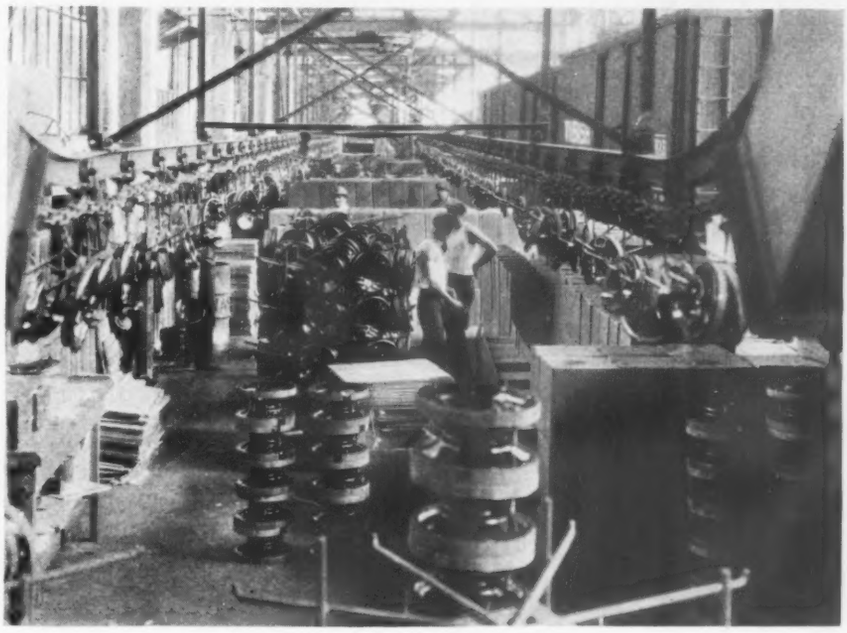
Riveters are automatic and operations include piercing rivet holes, setting in rivets and heading rivets. Eighteen rivets secure the rim to the disk and the wheel is then conveyed to a washer. The continuous washers are rectangular oven arrangements where a boiling solution of soda is sprayed on the wheels, thoroughly cleaning and removing all grease from them. Following the washing treatment inspection is made and the wheels placed on another gravity conveyor and rolled to the spray booth. Several of these spray booths are operated simultaneously, the wheels being mounted on spindles and spun while the operator directs the spray over the surface. The operator then removes the wheel from the spindle and places it on a hook which is attached to a moving rack. The racks, each accommodating about ten wheels, travel through an A-type continuous oven where high-bake black enamel is applied at 450 degrees Fahr. for 45 minutes. The oven is heated indirectly through an oil-fired heater and has a capacity of 400-500 wheels per hour.

As the wheels emerge from the oven they are placed on a monorail conveyor which carries them to the shipping platform where they are loaded into cars or, for export shipment, fastened by long U-bolts into stacks of ten wheels each.

With a production of 25,000 a day possible on this type of disk wheel a fabricating and assembling speed of 1 wheel about every three seconds must be maintained, operating one fabricating line on a 24-day with no shutdowns. There are two fabricating lines erected in the plant, side by side, which are identical in equipment and speed of operation. This, of course, would mean a speed of six seconds per wheel through the fabricating operations at 25,000 wheels per day production.

On small orders for disk wheels material is conveyed from one press to another on trucks and operations are somewhat slower than on the continuous line. Separate groups of presses handle this work which comprises principally large truck wheels of the heavy disk type, up to 29 inches diameter. Such wheels when completed weigh up to 120 pounds and metal drawings run as high as 6 inches. The general procedure in forming, assembling and painting the wheels is the same as on the continuous line. Some types of wheels are made with the disk welded to the rims and special automatic welders have been installed to accomplish this. A large number of heavy-duty presses are provided for work on this heavier material. These presses also are used on other miscellaneous jobs such as housing plates, etc.

A large section of the plant is set aside for work on brake drums, both front and rear. The drums must be gaged closely for thickness and after being formed in presses the braking surface is cold rolled to a smooth hard finish on specially designed vertical spindle machines. This truing operation formerly was done by machining but it was found that a better braking surface and resistance to scoring could be obtained by the rolling process.

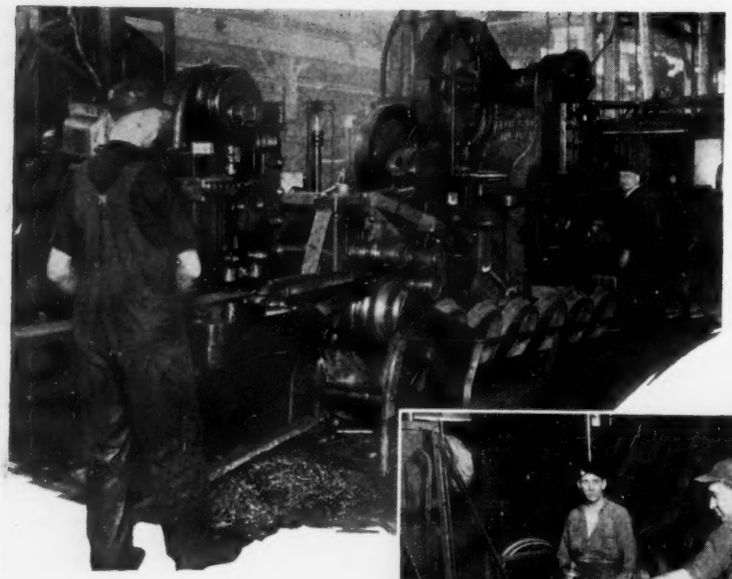


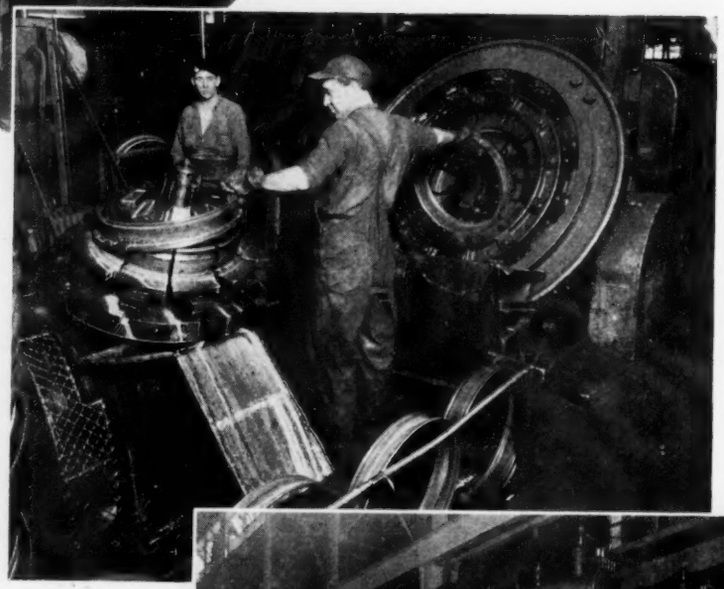
Shipping and export packing department. Finished brake assemblies are brought up on a monorail conveyor, packed in cardboard cartons and loaded into cars

Wheel hubs for various makes of cars are turned out in production quantities. Rear hubs are forgings, while some of the front hubs are stampings. Some of the forged hubs are formed at the Budd plant, although a portion of both front and rear hubs are shipped in to be machined and assembled to the brake drums.

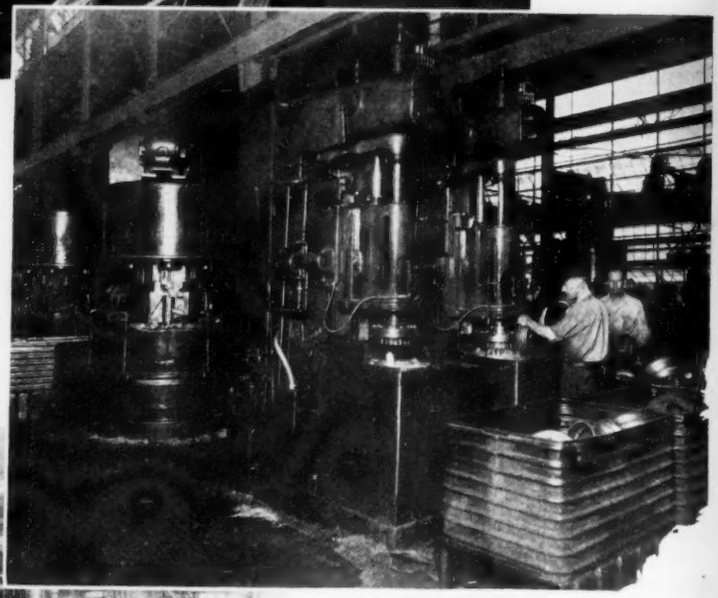
The hubs manufactured at the Budd plant are formed in a large upsetting machine. The material originally is cut from billets into 14 to 16-pound pieces and placed in a large 20-foot diameter oil-fired rotary furnace which accommodates 310 pieces at one time and heats to 2400 degrees Fahr. When the blanks have come to heat

◆ Rims Bent, Welded, Trued Automatically at Production Speeds

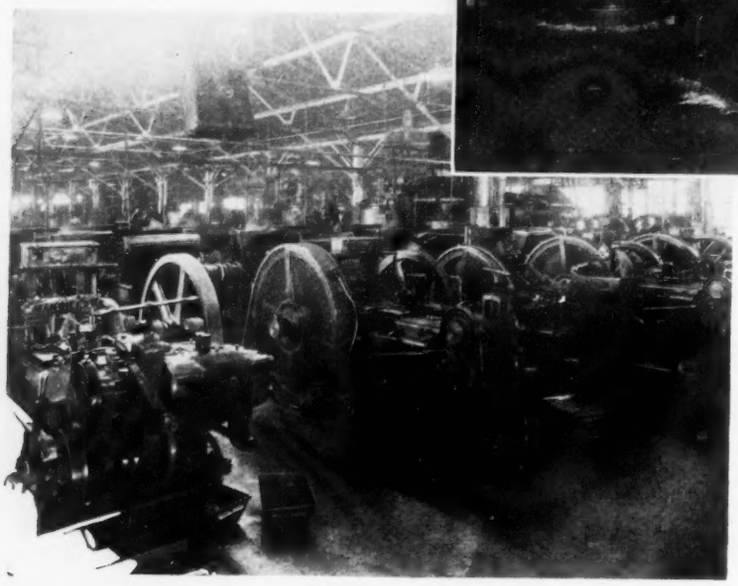




ABOVE is the rim line showing the forming rolls which bend strip to shape from a special rolled section; the welding unit which flash welds the joint also is visible. The unit illustrated at the right alternately expands and shrinks the rims, insuring correct size and a perfect circle

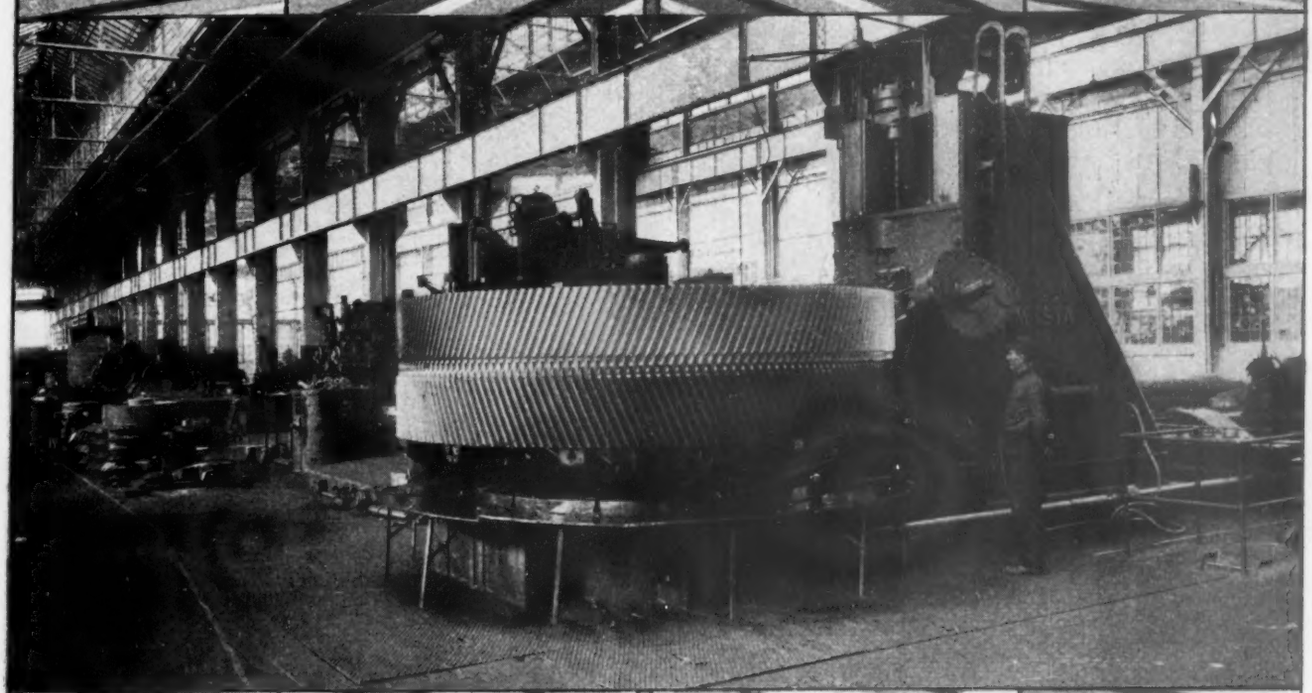


IN THE foreground of the illustration at the right are two specially-developed machines for rolling the inner surfaces of brake drums to effect a smooth hard surface, this method supplanting the former machining method, advantages being better braking surface and resistance to scoring



SEVERAL small headers are shown in the foreground of the illustration at the left, operated for cold forming small parts such as spokes, nipples, collars, etc. Automatic drilling, tapping and threading machines also are operated in this department

Accurate Gears



Accuracy, which is the basis of silent and smooth running gears, is obtained by cutting the teeth on a rigid, heavy, simplified, and accurately built machine.

Mesta gears, which are unequalled for their accuracy, are cut on the Mesta Gear Hobber pictured above. This is the most accurate gear cutting tool developed to date and possesses the qualifications mentioned above.

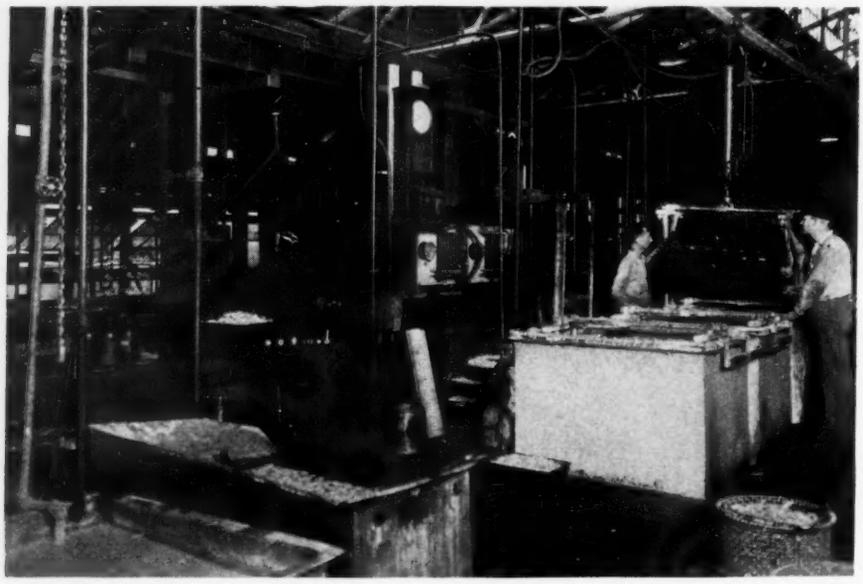
Individual gears and pinions or complete gear drives can be furnished.

Mesta

Mesta Machine Company
Pittsburgh, Penna.

they are removed by tongs, placed in a gravity chute and descend to a 7-inch upsetting machine which forms the hub. This upsetter is one of the largest of its type in operation at the present time.

Hub machining is all done on batteries of automatics. After the rough forging is chucked for machining, the hubs pass from one group of cutters to another. In all there are approximately 30 cutters. Following the machining operations, the hubs are placed in a lead bath, quenched and then placed on conveyors and taken to grinders where they are ground smooth. At this point they meet the brake drums and the unit is assembled, stud bolts being pressed in the drums and the latter assembled to the hub. The outside is then trued on a lathe, the complete unit inspected and stamped. The usual washing, spraying and baking treatments ensue, after which the units are ready for delivery to the manufacturer.



Plating department where a large number of small parts are cadmium plated. The tanks in the left background are equipped with automatic conveyors for moving parts from one solution to the other

Small Parts Cold Upset

Practically all small parts such as spokes, nipples, studs, brake lever parts, etc., are cold upset in a battery of headers. The heavier difficult parts are headed on larger machines. These headers are self feeding, material being cut to length and formed in one stroke. Thread rolling machines are used for threading. A final heat treating sequence furnishes additional strength to these small upset parts.

As an illustration of the number of parts required for brakes, daily production often averages 12,000 brakes; thus, with 75 parts in a single brake assembly, a total of 900,000 parts per day is required.

In connection with this small parts department is a cadmium plating set-up which consists of several rows of tanks containing various washes and cadmium solutions. Parts to be cadmium plated are suspended from overhead conveyors on racks which move periodically through the various solutions.

Two separate departments are maintained for wire wheel and brake production. An entire floor of one building is devoted to wire wheel production while the floor above is given over to brake assembly. Steps in the assembly of wire wheels are started by shrinking and expanding the wheel rim to size. This is done on a special type of electrically operated machine. Wire wheel rims are formed by rolling strip to the correct cross section, cutting to length, bending to the required circular form, welding the joint and truing to a perfect circle. The rims are placed on conveyors and taken to indenting and punching machines which punch holes for the wire spokes and form a number of indentations in the rim to give added strength.

Inner and outer hub shells are pressed together and automatically welded in cabinet welders. Numerous machining and drilling operations follow, after which the spokes are dropped in the hub and this assembly is then clamped in a fixture. On this fixture which is a sort of pedestal arrangement for holding the wheel firmly in a horizontal position, the outer rim of the wheel rim is gripped as well as the hub, and the spokes are connected and drawn tight by means of electric drivers. The assembled wheel is taken to a truing fixture and given a final test before being painted. All spokes must be in equal tension and the hub centered exactly. Spoke ends are then chipped and the opening at the nose of the wheel is bored for insertion of the hub cap. After the wheels are assembled they are washed and sprayed with primer and conveyed to a drying oven.

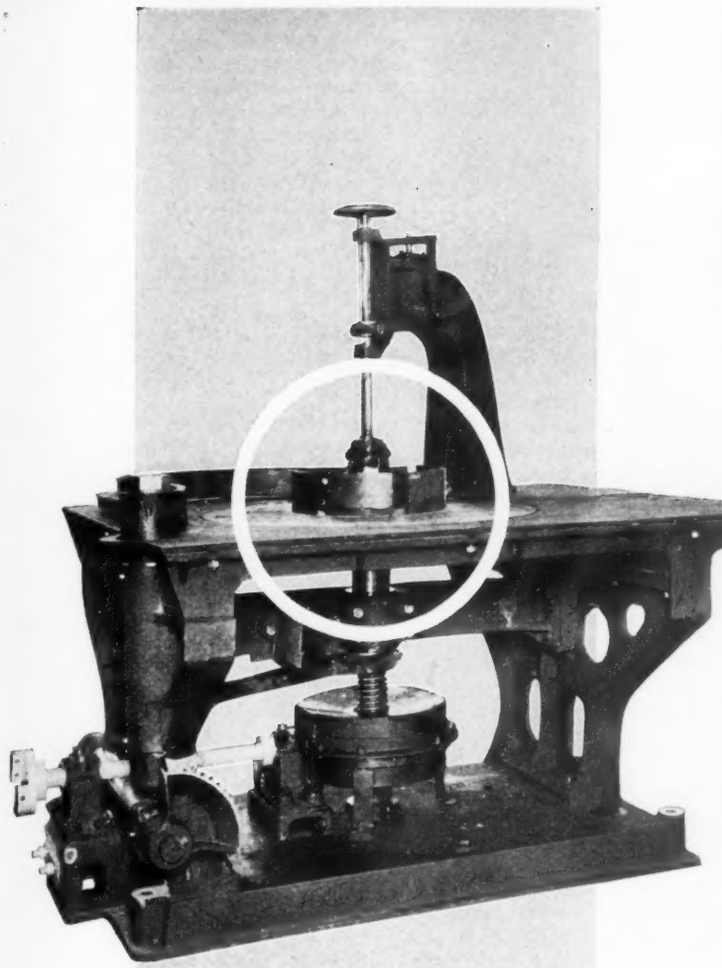
In so large a manufacturing plant with such a diversity of fabricating operations it is essential that a well-organized system of stores be maintained and the present system is the result of a ten year development in this direction. Over 5000 various types of machines are operated throughout the plant and for the maintenance of these machines and the tooling of them more than 8000 machine parts are required and 4000 tools.

Throughout the plant are located seven tool cribs, each one of which supplies a certain department. Tools are classified under the headings of machine tools and bench tools. When a man is employed in a plant he is issued a set of ten brass tool checks which allow him ten releases of material from the tool cribs. When these are used up, he must obtain an additional supply of checks which are charged against his department. A main storeroom supplies all the tool cribs. In this storeroom are placed all repair machine parts and such items as miscellaneous steels, of which there are over 50 types, electrical apparatus, oils and greases, waste, etc. Each of these items is given a definite bin number and the items are classified according to the department by which they are used.

Not only is the material in storage and in the tool cribs carefully sorted and classified but also a complete and careful record of every item and its movement through the plant is maintained in triplicate. All materials are card indexed and a moment's glance suffices to indicate where any certain items may be found, how much of any certain material is on hand and to whom certain parts have been released and charged. This carefully devised system of stores and releases of material to employes has reduced tool costs to a minimum.

Mining Engineers Division Discusses Coal Cleaning

Coal cleaning was one of the principal topics at the three-day convention of the coal division of the American Institute of Mining and Metallurgical Engineers, held in Pittsburgh, Sept. 11-13. Twenty-four papers were presented, other subjects including the evaluation of coal for blast furnace coke, control of quality of shipped coal, mechanical mining, safety in mining, stream pollution by acid mine drainage and the economics of coal. An inspection trip was taken Sept. 13 to various by-products coke and steam generating plants in the Pittsburgh district. The coal division of the institute was organized this year and has a membership of 1200.



Birdsboro *IMPROVES* upon the Strip Reel

Birdsboro, ever active in machine design, tackles the Strip Reel—scoring not only one point of perfection, but many.

Strip, upon entering the reel, is no longer bent to an acute angle over an engaging segment to secure it, leaving a straightening operation after each coiling . . . in place, we find an air cylinder clamp (shown in circle) that starts the strip, holding it rigid until ready to leave the table. At this point a second air cylinder draws the reel segments down permitting a flush disc. The kick-off arm, also visible, sweeps the completed coil onto a drag conveyor. Two separate units, right and left hand, constitute perfect workability—alternating so as to prevent delay.

Birdsboro's *NEW* Vertical Strip Reel accommodates strip in many widths and thicknesses and can be designed so as to conform to individual requirements. May we further discuss this machine with you?

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BIRDSBORO, PENNSYLVANIA

Billet Sizes Regulate Grinding Costs

BY L. C. GRIFFIN

Precision Grinding Wheel Co. Inc., Philadelphia

FOLLOWING presentation of the article "Compensating Grinding Costs for Varying Billet Sizes," in the Aug. 28 issue of STEEL, a number of persons interested in billet grinding have submitted questions regarding the subject. Practically all of the questions are of the same nature, namely: "How can I apply this method to my particular grinding room when I have a dozen or more sizes of billets to be ground in one month?"

To help those who have raised the question, as well as those who have asked it only of themselves, a composite example typical of any billet room, is outlined. By substituting individual production figures, billet sizes and costs, individual cases may be figured. The question asked, "during the last three months, our production and costs have been as follows:

Billets ground	Cost per ton
April—	
400 tons 4 x 4-inch	$9.37
May—	
200 tons 8 x 8-inch	
100 tons 6 x 6-inch	
100 tons 4 x 4-inch	6.25
June—	
200 tons 2 x 2-inch	
100 tons 3 x 3-inch	
100 tons 4 x 4-inch	14.28

"Surely my tonnage cost for June should not increase 100 per cent over that for May because of varied billet sizes, particularly as 25 per cent of my June production was on the same size (4 x 4-inch) as my May production. Will your method show me if the variation in my cost per ton was due to difference in billet sizes or to poor grinding wheels or some other fault, and if so, how can I apply it with so many different sizes of billets in the month's run?"

The answer to this question is: The method will prove whether or not the billet sizes are responsible for such cost variation. It is applied successfully in the following manner:

To ascertain if your costs are consistent with the amount of actual work performed during each of the three monthly periods, it is necessary to arrive at a definite unit of measurement for such work.

The effort expended to grind a certain tonnage of large billets is less than it takes to grind the same tonnage in small billets, but the effort to grind one square inch of area on large billets is exactly the same as that expended in grinding a like square area on small billets. Therefore, the unit of measurement for work performed should be reduced to terms of square area ground. To establish a base from which to work, it is necessary to use tons produced compared to the area ground. The most convenient way is to use a cost based on what is spent to produce one cubic inch of billet while grinding one square inch of surface. With this in mind, analyze the production by months using the figures given above for April, May and June.

Base Cost Defined

For every square inch of surface ground in April one cubic inch of steel in billet form was produced because in a 4 x 4-inch billet of any length, the number of square inches of grinding area is equal to the number of cubic inches in this billet. In other words, 400 tons of 4 x 4-inch billets contain 2,826,855 cubic inches of steel and have a surface of 2,826,855 square inches. Therefore, the expenditure of $3750 divided by 400 tons will show a cost of $9.37 per ton and may be used as the base cost.

The 8 x 8-inch billets ground in May contain two cubic inches of steel for every square inch ground. If nothing but 8 x 8-inch billets well produced during this month, the tonnage cost would be half that of April. The 6 x 6-inch billets, ground, contain 1.5 cubic inches for every square inch ground, while 4 x 4-inch billets as stated, have an equal number of square inches and cubic inches. In order to adjust for the same tonnage handled with the less area ground, the compensation is made as follows:

200 tons	x .5	= 100	tons
100	x .667	= 66.7	
100	x 1.	= 100	
400 tons		266.7 tons	

For the method of obtaining multiplying factors, see the Aug. 28 issue of STEEL.

If every square inch ground during this month produced one cubic inch of steel, the tonnage for the month be but 266.7 tons and not 400 tons. Therefore, instead of dividing the total expenditure of $2500 by 400 tons, it should be divided by 266.7 tons. Making the division, the cost per ton becomes $9.37 which proves that the April and May figures are comparable.

Treating the June figures in the same way, the 2 x 2-inch billets contain but 0.5 cubic inches per square inch ground, the 3 x 3-inch having 0.75 cubic inches per square inch and as before the 4 x 4-inch billets having an equal number of square inches and cubic inches.

To adjust for the same tonnage handled with the greater area ground the compensation is made as follows:

200 tons	x 2.	= 400	tons
100	x 1.33	= 133	
100	x 1.	= 100	
400 tons		633 tons	

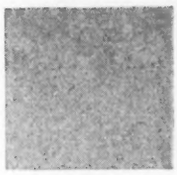
The effort expended to produce the billets of the sizes ground this month would have weighed 633 tons provided every square inch ground produced one cubic inch of steel. By dividing the total expenditure of $5,931.21 by 633 tons, we obtain a cost of $9.37 per ton, thereby showing the cost for this month is in keeping with the two months previous. If, on the other hand, the cost per ton after making compensation for varied billet sizes fluctuates, it will indicate that billet sizes had nothing to do with it and you should look elsewhere for trouble and correct it.

Testing Society Revises Standard Specifications

A number of revisions in the standard specifications for various steel products has been adopted formally by the American Society for Testing Materials following favorabe action to a letter ballot submitted to the members. Among the specifications changes are those for commercial quality hot-rolled bar steels and cold-finished bar steels and shaftings applicable to the screw steel grades in which the sulphur content was increased to provide better machinability.

The specifications for structural steel for forge welding have been revised allowing higher silicon content by agreement between purchaser and manufacturer. The selection of test specimens in specifications for lap-welded and seamless steel and lap-welded iron boiler tubes, and the tolerances for this material have been modified; and specifications for alloy steel bolting material for high temperature service have been limited to cover bolting stock up to and including 2½-inches diameter.

A number of tentative standards and tentative revisions to standards have been adopted as standard, there having been no criticism during the past year of the tentative specifications. The ballot included 10⁰ questions on which the members might indicate their preference.



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MORE UNIFORM
and
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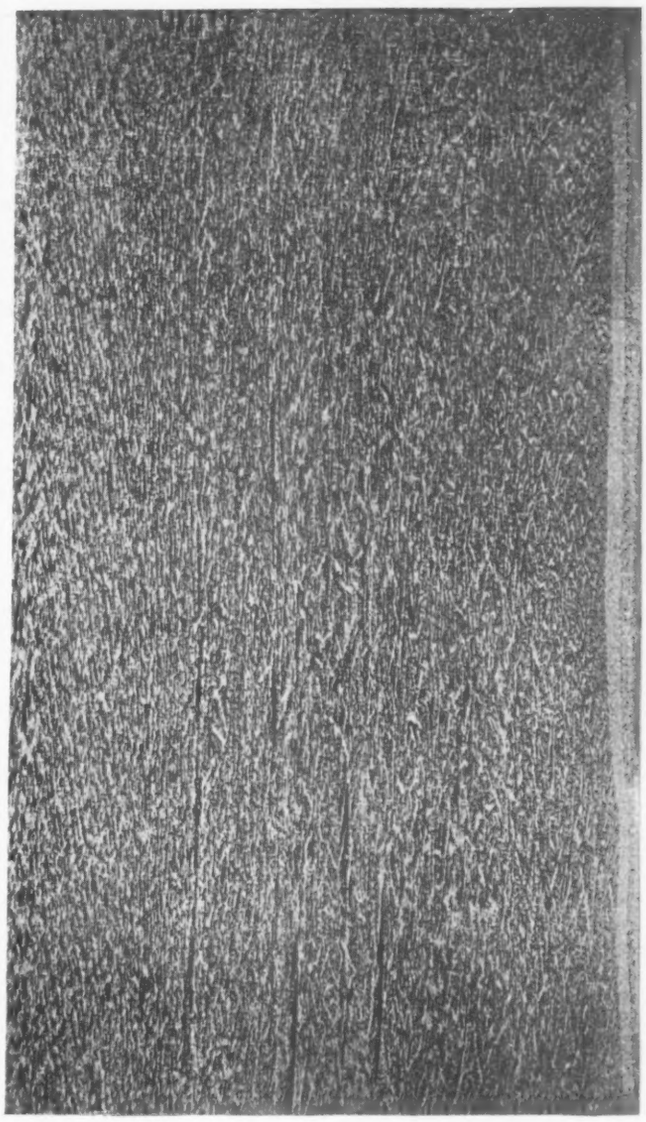

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Steel plate aisleway installed in eastern wire-drawing plant

Rolled Steel Floor Plates Are Finding New Uses

BY E. C. KREUTZBERG
Eastern Editor, STEEL

FROM the status of a specialty used almost exclusively as traffic treads on bridges, steel floor plate has grown during the past decade to a place among the major rolled-steel products. Produced in grooved rolls, which give the plate a raised pattern of correct design, the product combines with the strength and wearing qualities of steel the advantages of a surface that resists skidding and which drains freely. Steel floor plate does not crack or pulverize, absorbs no grease or dust, wears uniformly and does not lend itself to the development of ruts or holes. Installations of this character usually are permanent and afford reasonable assurance against expense or loss of time in connection with floor upkeep. In addition, the nonskid feature assists materially in reducing accident hazards.

New Uses Developed

As the result of extensive study and promotional work, the Alan Wood Steel Co., Conshohocken, Pa., one of the pioneers and principal factors in this field, recently has developed many new uses for this product. Experience to date has shown that floor plate is capable of almost universal application, in that its field of usefulness embraces nearly every condition where a durable, nonskid, nonabsorptive floor, walk, stairway or base is required.

Requirements of floor plate for structural purposes are proving of special importance. Where orders for this commodity for use in structures involved only miscellaneous requirements a few years ago, new buildings throughout the country now make use of this product for those purposes in which this material excels. A representative order booked recently by the Alan Wood Steel Co. involved a large tonnage for the Carew Towers, a new 40-story building in Cincinnati combining an apartment hotel, garage and theater under one roof. One use of floor plate alone in this building is in the fire platforms and stairways, 825 flights of 14 steps each.

Suitable for Sill Construction

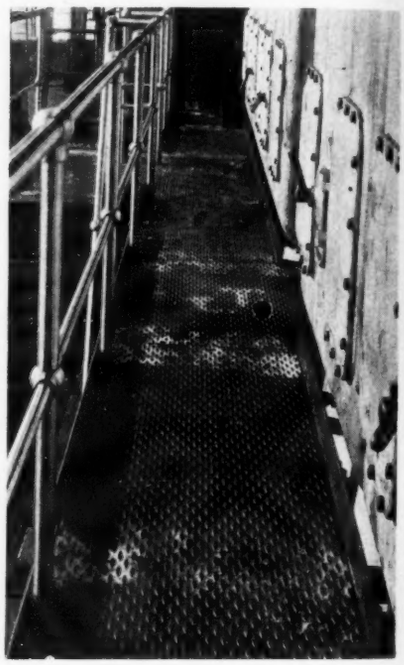
Another representative order, which it recently booked, involved floor-plate sills for installation in front of the elevator shafts on each floor of the new Lincoln building in New York. The extent of the requirements of the structural field is indicated by the fact that a single step, 4 feet wide, weighs 32 to 35 pounds. Considerable material is used also for coal chute covers and basement elevators located in sidewalks and for other purposes in connection with buildings. Cellar doors now generally are made of floor plate.

Large gains have been made in the boiler plant and power station field. From the large public utility boiler and power plants and substations, to the boiler rooms in individual office and apartment and other large buildings, it now is practically standard practice to use pattern plates for floors, platforms and walkways. In the public utility field, it is of interest to note that gasholder installations are being equipped with this type plate in producer houses and in trench covers to an increasing extent.

In the marine field, the use of floor plates has been widened. Not only are the power plants on ships equipped throughout with floor plate, but galleys, stairways, platforms, etc., in the hull are built of this material to an increasing extent. Shipbuilding and repair plants also are increasing consumers of this commodity mainly for use as covers for trenches containing oil, water, steam and compressed-air lines and electric wires, and the machine shops in these plants are equipped with a considerable amount of floor plate.

Railroads Important User

The railroad field also has become an important outlet. Many builders of passenger cars now employ this product for vestibule platforms and steps, and some use it entirely for floors. Its usage also has been extended to baggage and mail cars, and to the galleys of dining cars. Steps, platforms and walkways on locomotives and tenders are being fabricated of this material. Wooden runways and dome boards of tank cars are being supplanted by steel walkways. Under a recent ruling of the interstate commerce commission tests are being permitted to deter-



Platform around diesel engine made of pattern plates

mine the suitability of steel floor plate for box-car walkways. In addition, the railroads are using this type of plates to an increasing extent in their shops for flooring, trench covers, and overhead walks on signal systems.

In the general industrial field possibilities for the use of floor plate appear unlimited. For instance, overhead cranes are provided to an increasing extent with walks made of plates with a nonslipping surface and the requirements in this field are indicated by the fact that 300 to 400 pounds of stock is needed on the average for a crane of 40-foot span. Machine tool and equipment builders have begun to use this nonskid material extensively as base plates and foot plates. A Bridgeport manufacturer of automobile machinery now is equipping all units with base plates

Steel traffic tread on Broadway viaduct at Rensselaer, N. Y.

End platform and trap door of passenger car built of floor plates

of this type weighing on an average of 150 pounds per machine. A Brooklyn press manufacturer uses floor plates platforms for serving the quenching baths at hardening furnaces. A stamping plant at Reading, Pa., has all foot plates around the presses and trench covers throughout the plant fabricated of this material.

Requirements in connection with bridges are increasing rapidly. Recently the Alan Wood Steel Co. supplied 200 tons of floor plate for four lines of tread on the new bridge and approaches across the Columbia river, between White Salmon, Wash. and Hood River, Oreg. Such traffic tread installations have been made for many years and continue to increase in tonnage. A new development in their use in bridge construction is found in the bridge now under construction across the Delaware river between Bristol, Pa., and Burlington, N. J. The entire lift span is surfaced solidly with plates of this type.

Up to the present time, aside from bridges, floor plate has only one important use as a traffic tread. This is its use as railroad track crossings. The growth here is being accelerated by the fact that the track crossings formed from pattern plates afford level crossings which never, under ordinary conditions, have to be repaired.

Installed in Aisleway

A large New Jersey wire manufacturing concern had a difficult floor problem which steel plates recently solved. One of the wire-drawing buildings had a wooden floor, which had to be repaired frequently and, once every three years, that portion of the floor in a 16-foot strip running down the middle of the building had to be replaced completely. The wear was caused chiefly by the constant passage of electric trucks, some carrying 10-ton loads. This 16-foot strip has been relaid in 5/16-inch floor plate, and present indications are that this aisle covering will last fully as long as the building. In addition to having a floor, which involves no expense or loss of production for upkeep or relaying, the accident hazard in this building has been reduced.

In the paper industry the use of steel floors also is gaining headway. About a year ago the Alan Wood company supplied nonskid plate to a paper mill at Lock Haven, Pa., which up to that time had been using concrete as a flooring material. The floors were subjected to exceptional wear, principally from the constant travel of steel-wheeled electric trucks with loads up to 2000 pounds, so that the concrete was chipped and pulverized, the atmosphere dusty and the floor condition bad. The floors in this mill now are of steel plate laid on concrete, and welded to channels embedded in the concrete. After a year's hard wear, the surface shows no deterioration.

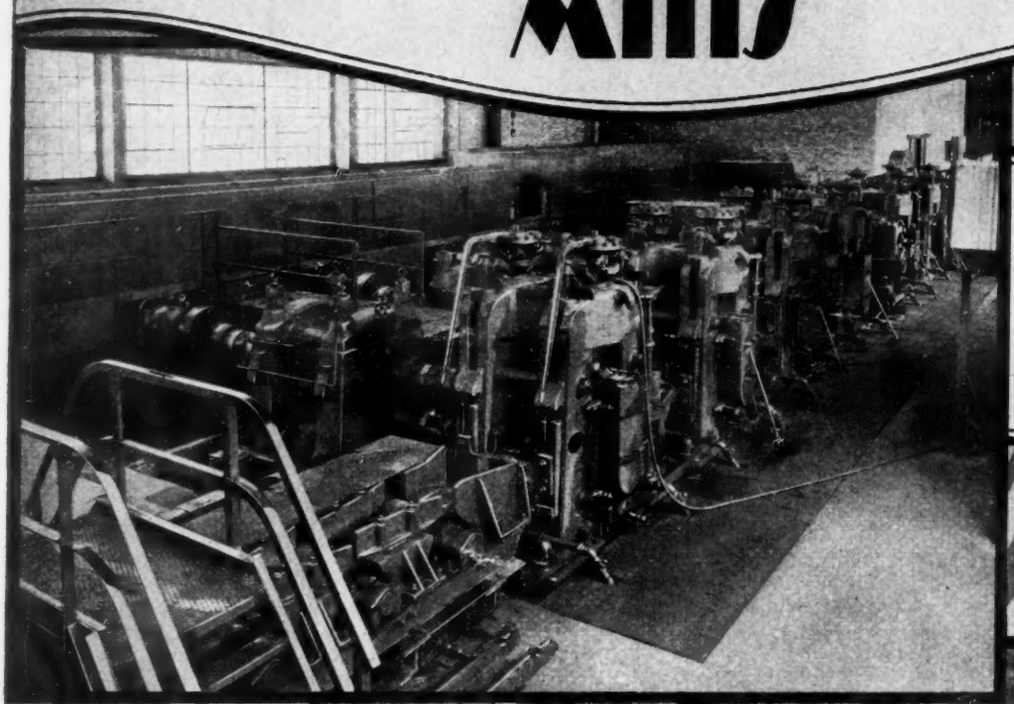
Another outlet for steel floor covering has been developed in the silk industry. A large Detroit department store having concrete floors in its silk warehouse found that the concrete dust rotted the silk. The company was unable to use wood, because the pores hold dust. Steel floor plate was installed in this warehouse and has given entire satisfaction.

In the steel industry the use of floor plate already has been adopted in a few plants and several well-known steel companies have tried in-

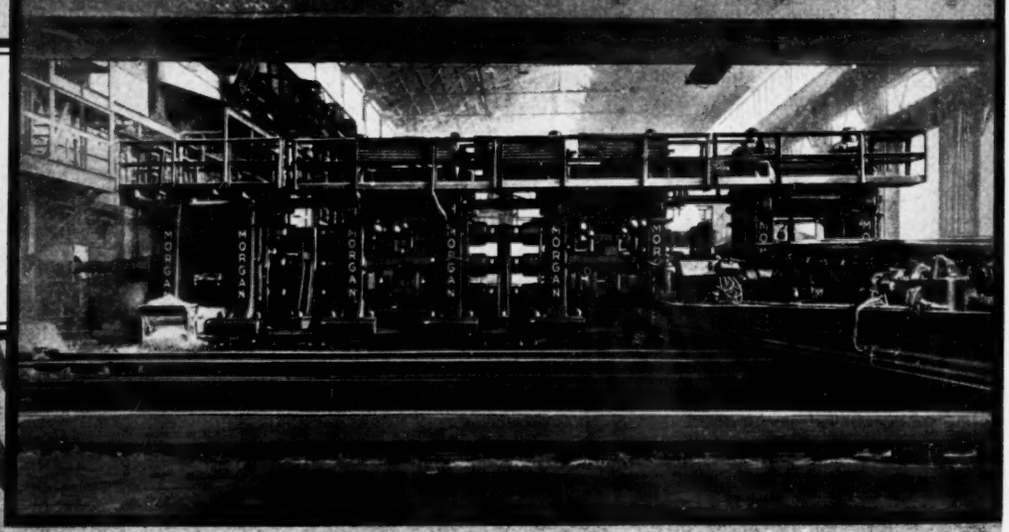
Mezzanine floor of large Detroit department store built of steel plate

MORGAN

Continuous & Structural Mills



19 Inch Continuous Bar and Billet Mill. Designed and built by us complete. Installed at the Continental Steel Corporation, Kokomo, Ind.



28 Inch Structural Mill designed and built complete for the Inland Steel Company, Indiana Harbor, Ind.

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Designers - Manufacturers - Contractors

Steel Plant Equipment - Forge Shop Equipment - Special Machinery Of All Kinds

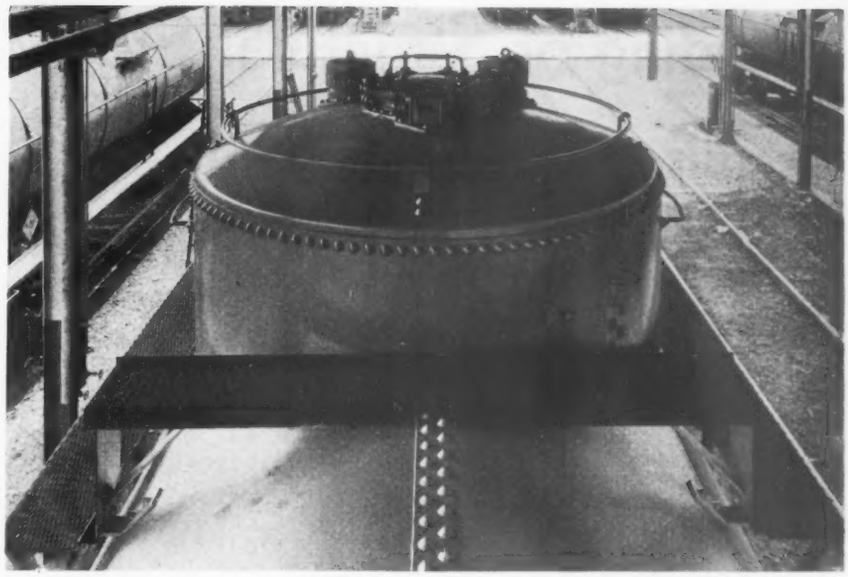
stallations. One steel producer states steel floor plate is the solution to many floor difficulties. This type plate is employed for floors, stairways, platforms and trench covers throughout the plant. The only exception is on the open-hearth floor where the raised, nonskid pattern interferes with shoveling.

In the automotive industry, floor plates are in use particularly in the plant of the Ford Motor Co. In some plants the use is modified. For instance, the Edward G. Budd Mfg. Co., Philadelphia, has creosote block floors, while piping, belting, wiring, feed lines, etc., are in trenches covered with floor plate.

Argentina Books Plates

An interesting order recently booked by Alan Wood involves 40 tons of pattern plate to be shipped to Buenos Aires, where it will go into the floor of a new printing plant. Printing plants in the United States also are taking a constantly increasing tonnage of this product.

A novel use developed recently in a large garage when it was necessary to install a 60-foot turntable at the bottom of two ramps which were placed at right angles to each other.



Running board and dome platform of nonskid construction on tank car

One large use which bears development is in connection with manhole covers in city pavements. Each city has its own ideas as to the size and construction of manholes and covers. Standardization in this direction not only would provide an outlet for a large tonnage of floor plate in the aggregate each year but also would decrease the cost of manholes and their covers to municipalities throughout the country.

Research Proves Valuable as Aid to Sales

A CAPABLY manned and thoroughly equipped research department has been found by one of the large eastern stamping manufacturers to be a highly important adjunct in selling stampings. This is the Herman Z. Cutler Co. Inc., with headquarters at Camden, N. J., and production plant at Bridgeton, N. J. This company has completed a new and completely equipped research department at Camden, located in the same building with the executive department.

In this department are made the dies, jigs and fixtures which are sent to Bridgeton and set up there for production work. But the principal function has to do with the design of stampings, and, through design, the creation of new business in stampings. The question of design is important not only in connection with business already on the company's books, but in connection with new business, and it has been found that initiative in the matter of design opens up big possibilities in building business in stampings.

Attention to the factor of design applies to all stampings which the company manufactures. It has proven of particular value in building up a large business in parts for motor truck and motorbus bodies. These parts, which include fenders, hoods, cabs, fuel tanks, running boards, cowling and, in fact, the entire body are made by the Cutler company for a large number of manufacturers of trucks and buses.

Originally, the factor of utility was practically the only one considered in designing bodies for trucks and buses, and the Cutler company, one of the pioneers in this line sought to combine the principles of artistic design with utilitarian requirements. Its efforts in this direction were appreciated by the buyers to such an extent that in a number of cases they have entrusted to the Cutler company the complete redesigning of their truck and bus bodies.

Develops Standardized Parts

Not only has the service in designing of stamping helped the Cutler company to strengthen its hold on this business, but it has permitted the company to evolve standardized parts, with the result that production costs have been lowered. For instance the company recently designed a standard crown fender whose lines harmonize with the larger tires now in general use. For producing this fender, only one die equipment is required. The fenders are so designed that they may be stamped out in large sizes and cut down to the size required. Such standardization, of course, not only brings about a saving in the investment in dies and fixtures but also a saving in time consumed in changing dies and fixtures. It also makes possible quicker deliveries to customers.

Attention to design also has enabled the company to create new business in stampings. An illustration is a new type of humane animal trap which it recently placed on the market. This trap, of an altogether different type than any hitherto produced, first was made by the inventor in a form which did not lend itself to economical production in a stamping plant. The trap was referred to the company's research department and after some study, a good many changes were made which resulted in making the trap satisfactory from the standpoint of reasonable production cost. In view of the fact that approximately 50,000,000 traps are sold by American manufacturers each year, the company hopes, now that its trap can be made to sell at a moderate price, that a big business will be developed. This, in turn, will materially increase the company's consumption of steel, for the traps, which are made of steel stampings, steel rod and steel chain, weigh up to 16 pounds each.

In the same department the company develops new stampings, particularly where it is found that steel is a better material for a particular purpose. Recently the company developed a steel

(*Concluded on Page* 65)

Welding of Structural Steel Requires Understanding

BY FRANK P. McKIBBEN

Consulting Engineer, General Electric Co.

AS THE number of electric arc welded steel buildings increases, and as the size and heights of these structures become greater, municipal building commissioners and chief building inspectors will find at the beginning of each inspector's career, a need for the latter's instruction in the elementary and fundamental features of arc welding as applied to ordinary steel building construction. As an aid in this process the following direct questions and answers have been prepared by the writer after consultation with several welders, welding engineers, contractors and building commissioners, and after having had experience in the design and construction of a number of welded structures varying from 1 to 18 stories in height.

To those engineers experienced in welding procedure, these questions and some of the answers will appear of a very elementary nature, but it must be remembered that to the man who has not been in contact with welding nor has been thinking in electrical terms, they give ample food for thought; simple though they are:

Question 1. What is electric arc welding?

Answer. Welding in which two pieces of steel are melted together by electric arc.

Question 2. What is the proper procedure for the contractor for erection of steel to follow in starting, for instance, a 10-story building?

Answer. The first tier of steel, after being erected, should be plumbed true to lines and levels, and all connections should be securely bolted or clamped, before starting any welding. Each tier thereafter should be treated in the same manner.

Question 3. What is an electrode or welding wire used in electric arc welding of steel building frames?

Answer. The electrode or welding wire is a short length of specially prepared steel wire about 12 to 18 inches long, and from ⅛ to ¼-inch in diameter, which is clamped in the electrode holder held in the hand of the operator and forms one terminal of the electric circuit. This wire is practically the same grade of steel as the steel parts which are to be welded.

Question 4. How important is the electrode?

Answer. Of the utmost importance. Care should be taken to use only the make and type specified.

Question 5. What are the base or parent metals?

Answer. The materials to be welded.

Question 6. What should be the condition of the base metals at the time of welding?

Answer. Clean and free from rust, dirt, grease, paint or other foreign substances, except for a thin coating of linseed oil if the engineer has specified its use.

Question 7. How does the operator form the electric arc which melts the base metals together?

Answer. (a) One wire cable (lead) from the electric welding machine is fastened to the electrode holder held in the the hand of the operator, while the other wire from the machine is attached to any part of the steel pieces to be welded; (b) The end of the welding wire is touched to the steel parts, where the weld is to be made, and current flows; (c) The wire is then withdrawn about ⅛ or ¼-inch away and the electric arc is formed.

Question 8. Which welding lead, positive or negative, is ordinarily connected to the electrode holder when welding structural steel?

Answer. The negative.

Question 9. Does the electrode or welding wire last a long or a short time?

Answer. It lasts only a short time, because the heat of the arc melts it and it must be renewed when used down to 2 or 3 inches in length.

Question 10. What type of welding current, alternating or direct, is ordinarily supplied to the welding operator for use in structural steel welding?

Answer. Direct current is almost exclusively used for arc welding structural steel.

Question 11. What diameters of electrodes are ordinarily used in structural steel welding?

Answer. At present 5/32 or 3/16-inch diameters are generally used.

Question 12. What precautions must be taken by the operator, while welding, or the inspector of welding while watching the welding process?

Answer. The arc should not be looked at without covering the face and neck with a helmet; in which is a darkened glass for protecting the eyes against the arc. The welder should also wear gloves to protect his hands.

Question 13. Which is preferable —a short arc or a long arc?

Answer. A short arc because it makes a purer weld, gives better fusion and penetration, and causes less spattering of the molten metal.

Question 14. What are the names of the two small dials or gages found on most welding machines?

Answer. One is the voltmeter. The other is the ammeter.

Question 15. What does the voltmeter on the electric welding machine indicate?

Answer. The voltmeter indicates the voltage, that is, shows the number of volts, or electrical pressure; somewhat as a water pressure gage shows the water pressure in a pipe line.

Question 16. What does the ammeter on the electric welding machine indicate?

Answer. The ammeter indicates the amperage, that is, shows the number of amperes, or quantity of electric current flowing; somewhat as a water meter records the quantity or amount of water flowing through a pipe.

Question 17. Does the needle on

ADMITTEDLY, as pointed out by the author of the accompanying article, much of the information will appear of elementary nature to experienced engineers. On the other hand, arc welding of structural steel is a rapidly growing method of fabrication in the building industry, and the detailed procedure and explanations will prove of interest to those not in intimate contact with welding. It is for this general understanding, therefore, that the article is presented. The author, Frank P. McKibben, is consulting engineer, General Electric Co., Schenectady, N. Y.

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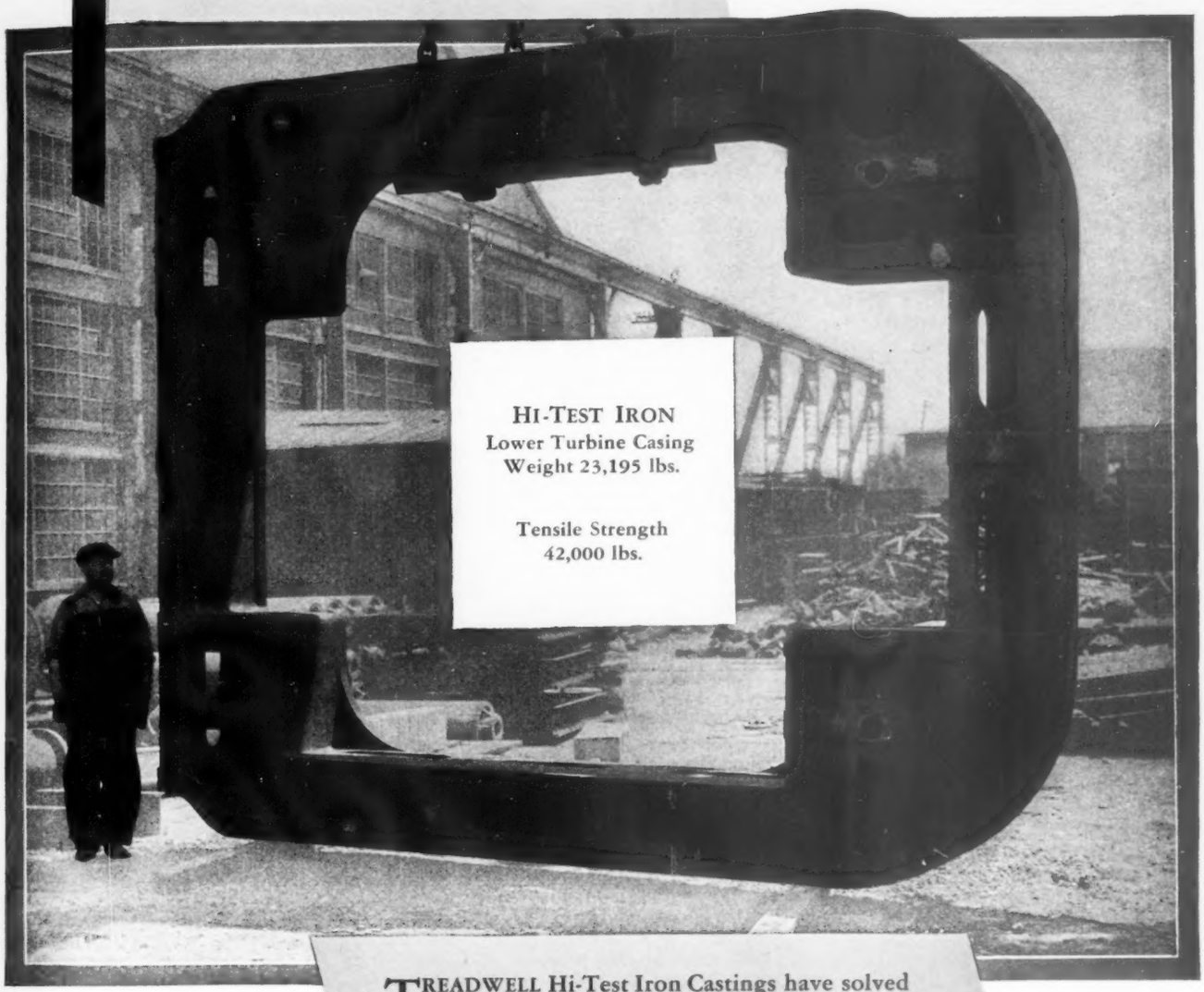

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the voltmeter record the same amount all the time?

Answer. No. When the welding operator is welding, the needle on the voltmeter records a small number of volts. When he is not welding and the machine is running idle the needle records a larger number of volts.

Question 18. Does the needle on the ammeter record the same amount all the time?

Answer. No. When the welding operator is welding, the needle on the ammeter records a large number of amperes. When he is not welding and the machine is running idle the needle stands at zero.

Question 19. Is there any way by which the welding operator can regulate the amount of current, that is, change the amperage, in order to get more or less current as required for welds of varying sizes?

Answer. Yes. On each machine is a small crank, or similar device, which can be turned in such a way as to furnish more or less current, and therefore more or less heat, to the welder.

Question 20. Does a welding operator in welding thick steel require more current, that is, more amperes, that is, more heat, than when he is welding thin steel?

Answer. Yes. The thicker the steel parts to be welded, the greater is the amount of heat required, and the current must be greater than when welding thin steels. The thicker the steel, the greater should be the amperage.

Question 21. How would you identify each welder's work if several were working on one job at the same time?

Answer. Require each man to use a die or stencil for marking the steel at each weld he makes.

Question 22. Name the two kinds of welded joints that are sometimes used to test welding operators to find out whether they can do good welding?

Answer. (a) Butt welds, and (b) fillet welds.

Question ..23. How is a butt-welded joint made?

Answer. For thin plates, say ¼-inch thick or less, by placing the edges of the plates almost but not quite together and melting them together by the arc. For thicker plates, before applying the arc, the edges to be welded should be beveled.

Question 24. How is a fillet weld made?

Answer. Fillet welds are used where one plate to be welded is lapped over the other, and the two joined together by depositing with the arc a mass of metal against the edge of one plate and against the side of the other, forming a fillet.

Question 25. If a fillet were sawed across so as to show its cross section what would be the shape of this cross section and about how large?

Answer. The cross section of a fillet is generally a triangle. The base of the triangle is ordinarily equal to its height and is about ¼ or ⅜ or ½ or ⅝--inch.

Question 26. How would you describe the size of a fillet which has a triangular cross section with base and height of the triangle each ⅜-inch and the fillet extends 6 inches along the edge of the steel plate?

Answer. This would be a ⅜-inch fillet, 6 inches long.

Question 27. In welding steel building frames, made up of beams, columns, and other similar structural shapes, what kind of welds are mostly used?

Answer. Triangular fillet welds are nearly always used and are generally of ⅜-inch size; although they may be specified by the engineer as small as ¼ inch and as large as ⅝ inch or sometimes even ¾ inch.

Question 28. For carrying ordinary floor loads in buildings what is the safe load in shear allowed by building codes for a triangular fillet weld ⅜-inch size and 1 inch long; ½-inch size and 1 inch long; ⅝-inch size and 1 inch long?

Answer. For ⅜-inch fillet 1 inch long, 3000 pounds. For ½-inch fillet 1 inch long, 4000 pounds. For ⅝-inch fillet 1 inch long, 5000 pounds.

Question 29. Is a fillet of good smooth appearance free from small gas holes, better than one with a very rough surface, and badly pitted with gas holes?

Answer. Yes, smoothness of surface and freedom from gas holes indicate better workmanship and stronger welds.

Question 30. What precautions should be taken to insure good welds?

Answer. (a) Employ only welders who have satisfactorily passed qualification tests to show their skill in welding. (b) From time to time during progress of the work, in order to maintain a high standard, require each welder to make additional tests. (c) See that the welding wire conforms to the requirements of the specifications and shows good welding qualities. (d) Inspect the welds while being made to see that operator is holding a short, steady arc and using the proper amount of current. (e) Examine the finished welds and accept only those having a smooth appearance free from gas holes or porous places; see that the crater shows that the weld has properly penetrated the base metals; see that the edges of the deposited metal are sharp and indicate good penetration into the base metals.

Question 31. About what current should be recorded on an ammeter of a welding machine when the welding operator is depositing a ⅜-inch fillet? For depositing a ¼-inch fillet?

Answer. For depositing a ⅜-inch triangular fillet a current of from 175 to 200 amperes should be indicated on the ammeter. For ¼-inch fillet, a current of from 150 to 160 amperes should be indicated.

Question 32. Approximately what amount of current should be used with 5/32-inch diameter electrodes? With 3/16-inch diameter electrodes?

Answer. This depends somewhat on the thickness of steel to be welded but generally 150-200 amperes for 5/32-inch diameter electrodes and 175-225 amperes for 3/16-inch diameter.

Question 33. How should a condemned weld be removed in order to permit the point to be rewelded?

Answer. The weld metal should be cut out either with a compressed air tool or by hand.

Question 34. Are some kinds of steel floor joists welded?

Answer. Yes. Some are made in factories by welding steel parts together.

Question 35. By what methods are welded steel floor joists connected to the steel floor beams which support them in the building?

Answer. Where welded steel floor joists are used, they are connected to the steel floor beams by bolts, clamps or small fillet welds.

Seven Additional Companies To Exhibit at Chicago

Late additions to the list of exhibitors in the National Metal Congress to be held Sept. 22-26 at Stevens hotel, Chicago, raises to 188 the total number of exhibiting firms. More than 35,000 net square feet of booth space has been contracted by the exhibitors, while the gross size of the exposition will run well over 70,000 square feet.

The following firms contracted for space too late to be included in the list of exhibitors which was printed in STEEL Sept. 11: H. A. Brassert & Co., Chicago—Booth 11-D; Chemical Rubber Co., Cleveland—Booth 3-F; A. P. deSanno & Son, Philadelphia—Booth 23; Struthers-Wells Co., Warren, Pa.—Booth 93-A; Union Drawn Steel Co., Beaver Falls, Pa.—Booth 40; Universal Bearing Metals Corp., Rochester, N. Y.—Booth 91.

Federal Mogul Corp., Detroit, manufacturer of babbitt metal, has increased capital from 150,000 to 180,000 shares no par value.

Courtesy of The American Rolling Mill Company.

This hot-strip mill in The American Rolling Mill Company's Plant at Middletown, Ohio, is C-H Ltl-Controlled.

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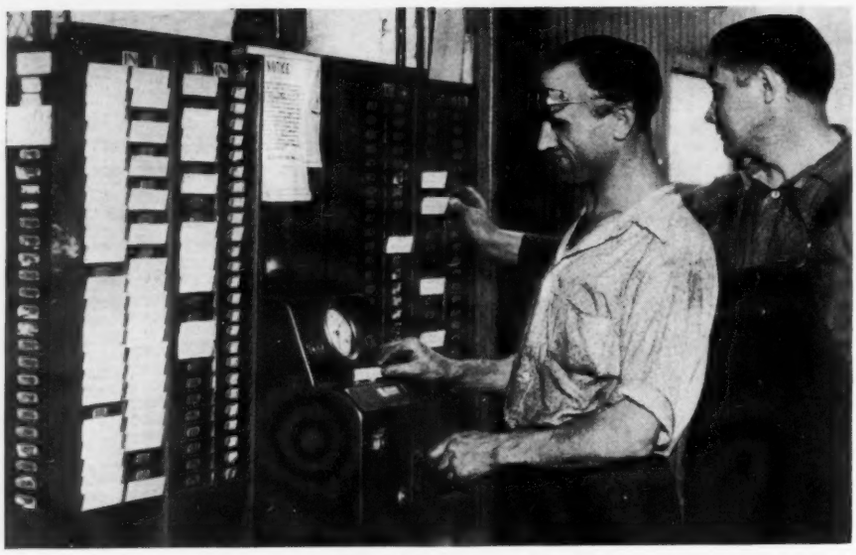
(A-242)



The modern steel "time clock" is nearly as compact as a typewriter. Heat treated parts and corrosion-resisting alloys contribute to its reliability and indestructibility. Steel racks are rapidly replacing those made of wood

Large Uses of Steel in Small Ways

174th Article ◆ Time Recorders

AN INCREASING amount of steel is being consumed in the manufacture of industrial time recording devices. According to reliable estimates, 1500 tons is consumed annually, of which at least 250 tons is required for machines for export. Since 1924 the consumption per unit has practically doubled at some producing plants, with a further gain reflected in the increasing number of units made. One large manufacturer says the average increase in output of time recording devices is more than 10 per cent annually.

More Steel Is Used

The sharp gain in the use of steel in recent years is attributed largely to refinements in the treatment of the metal and to the development in alloys. At plants producing about 75 per cent of all the industrial time recorders manufactured in this country the average unit is made up of 75 to 80 per cent steel and iron compared with 40 per cent a few years ago.

In the construction of the modern devices cast iron is used for framework, cold-drawn steel for support shafting, strip steel for levers, bar steel for bracing, and sheet steel for the formed pieces. Special bar stock, case hardened, is used in the making of pawls, ratchets and gears. Except operating shafts, which are of stainless, nickel alloy steel, the parts are specially treated against corrosion. Incidentally, as construction is of a precision character, tolerances of 0.001-inch are usually observed.

The first industrial timing device was made in 1887 by Harlow N. Bundy, Binghampton, N. Y. He established the Bundy Mfg. Co., which formed the nucleus of International Time Recording Co., organized in 1900, and now a division of the International Business Machines Corp., New York.

Included in the early organization of the International company were the Willard & Frick Mfg. Co., and the Standard Time Co., Rochester, N. Y.; the Chicago Time Register Co., Chicago; the Dey Time Register Co., and the Syracuse Time Recording Co., Syracuse, N. Y. At present there are four or five leading manufacturers of time recording instruments in this country.

A feature of the business is a rapidly expanding export demand, despite a larger number of time recorder manufacturers abroad. There are fully a dozen fairly large manufacturers in Europe. However, American manufacturers are said to produce more efficient recorders and by making them in large numbers have been able to keep prices within a reasonably competitive range. South America is a particularly good market for American machines. Certain American companies have established plants in Europe, for which steel requirements are supplied mainly by foreign mills.

An increasing outlet for steel lies in the manufacture of auxiliary equipment, such as card racks. At present wooden racks, with sheet steel pockets, are in general use. Some manufacturers predict that within the next few years steel will be used exclusively for this equipment.

Nitro-Alloy Steel in Gears Is Convention Topic

The use of alloys steels to secure greater strength in gear construction, one of the most important problems before the industry, will be completely reviewed at the annual meeting of the American Gear Manufacturers association, Sept. 29-Oct. 1, at Hotel Clifton, Niagara Falls, Ontario. One of the outstanding papers to be presented will be "Nitro-Alloy Steels in Gears," by Prof. V. O. Homerberg, Massachusetts Institute of Technology, Cambridge, Mass. This talk is to be supplemented by one on the same subject by Prof. Earle Buckingham, Massachusetts Institute of Technology, Cambridge, Mass., who will elaborate on the subject and expand topics introduced by Professor Homerberg.

As is customary in the fall meetings of the association, one evening is being set aside for individual committee meetings. The principal point of interest in these meetings will be an address given before the general standardization committee, entitled, "A Look Ahead in Gear Standardization and Research," by C. B. LePage, American Society of Mechanical Engineers, New York. A. A. Ross, General Electric Co., East Lynne, Mass., chairman of the committee, will be in charge of the meeting.

Hardware Group To Discuss Wholesaling Methods

Wholesaling methods and procedure to be followed to secure greater business efficiency will be the theme of the thirty-sixth annual convention of the National Hardware Association of the United States which will meet Oct. 20-23 at the Marlborough-Blenheim hotel, Atlantic City, N. J. The association which will meet in conjunction with the accessories branch and the National Association of Sheet Metal Distributors will discuss the reduction of overhead expense, increasing turnover, analyzing lines and analyzing customers' accounts.

Gray Iron Group To Discuss Fundamental Issues

Fundamental issues confronting gray iron foundrymen will be the topics for discussion at the third annual convention of the Gray Iron institute, Oct. 8, at Hotel Cleveland, Cleveland. Technical research, progressive marketing, beneficial cooperation, and profitable cost controls are some of the subjects to be brought before the convention. The list of papers includes: "How Research is Benefiting Industry," by Dr. Zay Jefferies, Aluminum Co. of America, Cleveland; "Modern Day Merchandising," by John S. King, King & Wiley Inc., Cleveland; "The Consumer and Producer Profit through the Trade Association," by Phillip P. Gott, assistant manager, trade association department, Chamber of Commerce of the United States, Washington: "Reasons Why the Standard Cost System Should Be Used," by A. C. Denison, president, Fulton Foundry & Machine Co., Cleveland; and "Convention Highlights," by Dan M. Avey, editor, THE FOUNDRY, Cleveland.

Metallurgical Experts Plan Discussion of Steelmaking

New methods of refining steel, new conceptions of the function of slag in steelmaking and new methods of determining various harmful impurities in steel will be topics for discussion at the fourth annual meeting of the metallurgical advisory board to the bureau of mines and the Carnegie Institute of Technology in Pittsburgh, Oct. 17. The program schedules technical sessions both morning and afternoon in the auditorium of the bureau of mines, luncheon at noon and an informal dinner in the evening at the Pittsburgh Athletic association in the evening. The morning session will be under the direction of metallurgists of the bureau of metallurgical research of Carnegie Institute of Technology, and the afternoon session in charge of members of the staff of the bureau of mines.

A tentative list of papers, which includes subjects of interest to steelmakers, is as follows:

"Thermal Analysis," by Dr. F. M. Walters Jr., director, and Cyril Wells, assistant metallurgist, bureau of metallurgical research.

"Heat Treatment and Metallography," by Dr. V. N. Krivobok, metallurgist, and Cyril Wells, assistant metallurgist, bureau of metallurgical research.

"Crystal Structure," by Dr. J. B. Friauf, physicist, and Maxwell Gensamer, assistant metallurgist, bureau of metallurgical research.

"Dilatation," by Maxwell Gensamer, assistant metallurgist, bureau of metallurgical research.

"Constitutional Diagram," by Dr. V. N. Krivobok, metallurgist, bureau of metallurgical research.

"Chrome Nickel Alloys," by Dr. V. N. Krivobok, metallurgist, bureau of metallurgical research.

"Slag Viscosity and Deoxidation with Aluminum-Silicon Alloys," by Dr. C. H. Herty Jr., physical chemist, and Dr. G. R. Fitterer, associate metallurgist, bureau of mines.

Illustrated Progress Report on Fundamental Studies in the Laboratory. Including "The Electrolytic Method for Determining Inclusions in Steel," "Deoxidation with Manganese, Including the System Manganese-Oxide—Iron-Oxide," "Deoxidation with Manganese-Silicon Alloys, Including the System Iron-Oxide — Manganese-Oxide — Silica," "The Aluminum Method for Determining Iron Oxide in Liquid Steel," and "The Equilibrium Between Carbon and Iron Oxide in Liquid Steel," by Dr. C. H. Herty Jr., and Dr. G. R. Fitterer, bureau of mines.

Illustrated Progress Report on Plant Research in the Open Hearth, including "Deoxidation with Manganese and Silicon in the Open-Hearth Furnace," and "The Effect of Inclusions on the Rolling Surface and Physical Properties of Finished Steel," by Dr. C. H. Herty Jr., physical chemist, bureau of mines.

Research Proves Valuable as an Aid to Sales

(*Concluded from Page* 59)

cover for spare tires on automobiles; it is made of two steel stampings hinged together, and takes the place of fabric covers.

When promoting new business, it is the practice of the company to form a sample stamping in research department and show it to the prospective customer. When an order results, dies and fixtures are made and the part placed in production. By this method the company has developed a good deal of business in stampings. It makes steel frames for dynamic loud speakers which formerly were built with cast aluminum frames. It has caused a good many other materials, particularly wood and metal castings to be replaced by steel in radio parts. It now manufactures speaker cases, speaker cones, cabinets, amplifier bases, condenser cradles, all stamped from sheet steel. The company also has created much business in stampings for the airplane industry In particular, it has developed intricate stampings which serve as collector rings in the exhaust assemblies and cowling around the engines.

The Herman Z. Cutler Co. was founded 18 years ago by Mr. Cutler, who continues as president and general manager. The company originally was located in Camden. Three years ago it built its present large plant at Bridgeton. W. B. Nickum is vice president; R. G. Fleming is treasurer; Harry Dilcher is secretary; David Lane, assistant general manager; C. K. Olberg is general manager of sales, and M. Helmus is purchasing agent.

STEEL COMPANY PUTS FINISHING TOUCHES ON $200,000 RESEARCH LABORATORY

New research laboratory just completed by the Firth-Sterling Steel Co., McKeesport, Pa. As announced in the Sept 11 *issue of* STEEL, *this laboratory will be used principally for the increased production of tungsten carbide. The laboratory represents an investment of $200,000 and is equipped with a variety of apparatus for the testing of materials, as well as a miniature steel mill*

for those Heavy Drives

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D.O.JAMES

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

USES:

Alloy Steels

Qualities conferred to steels by alloy additions discussed by Dr. John Johnston, in United States Steel Quarterly, Autumn number 1930, *p.* 22, 2 *pp.*

Introduction of alloying elements increases considerably the cost of steel; consequently in selecting a steel for any specific use, that steel should be sought which will have the desired qualities at the lowest total cost. This is a matter not of chemical composition alone, but also of the heat treatment entailed and the general conditions of manufacture into the finished article; and it implies that the steel composition best suited for one finished product is not necessarily best for another. The principal properties of a steel, which may be improved by addition of an alloying element and appropriate subsequent heat treatment, are listed in table form.

STEEL 9-18-30

Corrosion of Metals

Developments resulting from recent investigations on corrosion reviewed by F. N. Speller in Metal Progress, September 1930, *p.* 48, 6 *pp.*, 8 *illusts.*

All the data so far available confirm the opinion that stress and chemical action are essential to develop the so-called caustic embrittlement in boilers It now is recognized that feed-water treatment should be controlled so as to produce the minimum amount of carbon dioxide and oxygen in steam where damage from corrosion may be serious. More work is being done to determine the conditions in boiler water that produce acid steam. Elimination of oxygen in the feed water will go a long way towards correcting this trouble.

STEEL 9-18-30

High-Manganese Steels

Notes on steels of this grade compiled in chart form, in Metallugria, August 1930, *p.* 134 *A*, 3 *pp.*

Subjects discussed include historical, composition, physical characteristics, contraction difficulties, melting, charging the furnace, finishing and making up the composition, structure of manganese steel, heat treatment and cleaning and machining castings. Most commercial manganese steels have about 11 to 12 per cent manganese, with about 1 to 1.2 per cent carbon. The ratio of carbon to manganese generally is maintained to approximately 1 to 10.

STEEL 9-18-30

FABRICATION:

Bridge Erection

General features of design and erection of the 3000-foot Mid-Hudson highway suspension bridge, by Frank W. Skinner, in a publication of the American Bridge Co., 56 pp., 68 illusts.

The construction of any bridge span exceeding 1000 feet, no matter what the type, is a special problem of the first magnitude. Only a few such structures have thus far been built in the entire world, a very large proportion of them, including six or more of the very longest, having been built in the United States where the science and art of bridge building have attained their conspicuously highest development, accompanied by correspondingly great resources, experience, organization and costly special and standard equipment. The author follows the design, and construction of the Mid-Hudson bridge from its inception to final completion. The illustrations show the work in relief and in diagrammatic form and the problems of the builders are outlined with the solution used to overcome them.

STEEL 9-18-30

Pattern Drafting

Fundamentals of pattern drafting for sheet metal shops, published by Sheet Metal Shop Service bureau, Armco Distributors Association of America, 32 pp., 12 illusts.

The fundamentals of sheet metal pattern drafting are founded upon the principles of geometry that relate to the surfaces of solids. Sheet metal articles being hollow are looked upon as being the coverings of solids and development of the patterns may be described as the development of surfaces. The visualizing and imaginative powers must be brought into action. Only by exercising and developing these powers can one be able to make any marked progress. The booklet outlines work on T-joints, pipes of same diameters intersecting at an angle, pipes of unequal diameters intersecting at an angle, irregular intersections between pipes of unequal diameters, irregular intersections of round and rectangular pipe, roof flange fitting over the ridge of a roof, Y-branches, return miters, and square and octagonal face miters. Twelve lessons are outlined with drawings indicating progressive instructive work for the student.

STEEL 9-18-30

PRODUCTION:

Lake Superior Iron Ores

Future of ore production from this district discussed by F. B. Richards, in Mining and Metallurgy, September 1930, *p.* 435, 2 *pp.*, 1 *illust.*

Assuming an average of 67,000,000 tons of ore mined in and shipped from the various iron ranges in the Lake Superior district, the supply of ore is assured for the next 20 years. The latest results in concentrating work on the Mesabi range show a recovery of about 90 per cent of the iron unit fed to the mills. The problem of beneficiation with low-grade ores must be solved in the near future so that in 20 years from now a considerable tonnage will have to be developed and plants built to make a large production.

STEEL 9-18-30

Sheet Mill Equipment

Improvements in apparatus for heating and handling steel sheets discussed by Edward S. Lawrence, in Blast Furnace and Steel Plant, September 1930, *p.* 1455, 5½ *pp.*, 6 *illusts.*

Progress made in reducing sheet bars or packs to the finished gage and size, in continuous rolling, normalizing and annealing furnaces, chain conveyors, pickling machines and annealing boxes are explained by the author in detail.

STEEL 9-18-30

Machine Tools and Plant Equipment

"Without machine tools modern machinery could not be built."

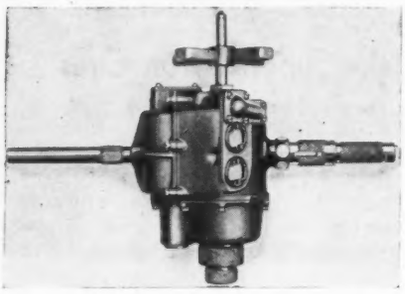
—Joseph W. Roe

New Air-Driven Drills Are Compact and Powerful

Chicago Pneumatic Tool Co., 6 East Forty-fourth street, New York, announces a new line of heavy-duty air drills embodying features which give them great power for their size. These tools are built in both reversible and nonreversible types, of which the accompanying illustration shows the first.

The tools have long stroke, block-type motors with valves and pistons in one casting. This permits short ports and gives less opportunity for air leakage. A new type of sensitive throttle assures accurate speed control, particularly valuable in stay-bolt tapping. The crankcase is of the split variety, which permits easy removal of pistons and crank. The pistons are held to offset toggles by ball-and-socket joints which allow the pistons to turn in the cylinders and prevents wearing out-of-round. The valves are interchangeable, right and left. Crankshafts are counterbalanced, and parts in the throttle are made of stainless steel to insure against corrosion and sticking. An automatic safety stop pin in the reversing-throttle handle brings the drill to "stop" or "neutral" position, unless the operator wishes to shift from "forward" to "reverse" or vice versa. The cylinder casting is so designed that a hole may be drilled in it for horizontal suspension of the tool when desired.

The new tools are built in six sizes, ranging in drilling capacity from 1¼ to 2¼-inch holes.



Air drills have efficient block-type motors

Oxygen regulator eliminates line pressure fluctuations

Two-Stage Regulator Gives Constant Oxygen Flow

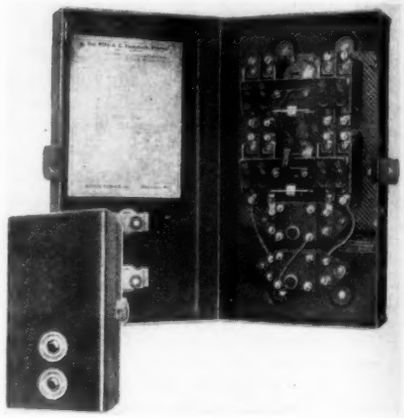
Oxweld-Acetylene Co., 30 East Forty-second street, New York, recently has perfected an oxygen welding regulator which insures a constant line pressure free from any fluctuations. This device, an illustration of which accompanies this description, accomplishes two-stage pressure reduction through two separate and independent sets of diaphragms, valves and springs. The full cylinder pressure of 2000 pounds per square inch enters the regulator through a stem-type valve and is controlled by the first stage diaphragm. In this stage the pressure is reduced to less than 250 pounds per square inch, the pressure at this point being nonadjustable and constant for any one regulator, but varying somewhat with different instruments.

Secondary Adjustable Reduction

The oxygen then passes to a second stem-type valve and diaphragm assembly where pressure is reduced to working point desired by the operator. This pressure can be regulated by the operator by means of an adjusting screw, any operating pressure being obtained without fluctuation. Instead of the usual handle type pressure adjusting screw, this instrument has a screw with a ribbed stem, which not only presents a neater and more compact appearance, but avoids possibility of breakage by eliminating projections.

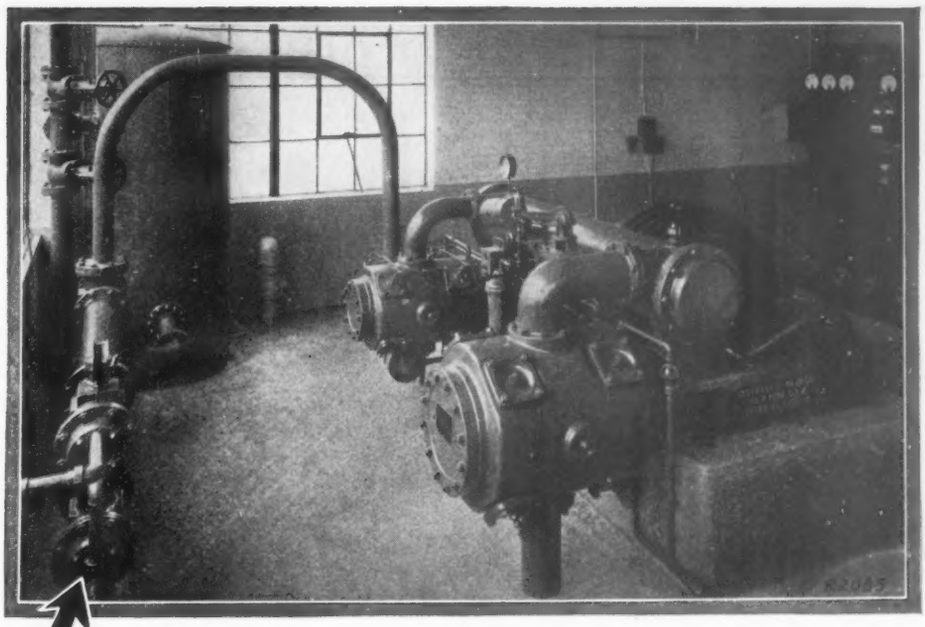
Automatic Starters Allow Quick Speed Changes

Cutler-Hammer Inc., Twelfth and St. Paul avenue, Milwaukee, announces a new line of enclosed automatic starters for two-speed separate winding-type squirrel-cage motors. These starters, one of which is shown in the accompanying illustration, are of the across-the-line type, the windings being connected directly to the line. Both windings are protected against dangerous overloads by means of thermal overload relays. A pushbutton master switch with "stop," "low," and "high" buttons is used to obtain control from a remote point.

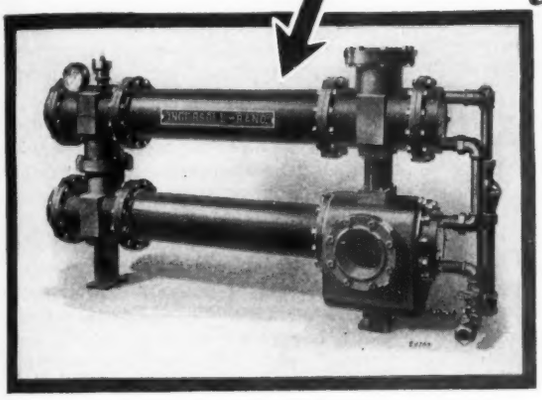


Automatic starters provide remote control with overload protection

These starters can be furnished in three types; for starting on either winding, with sequence compelling feature, or with automatic sequence control relay. For starting on either winding, depressing either the "low" or "high" button starts the motor on the respective "low" or "high" speed winding. The sequence compelling feature requires that the motor always be started at low speed before transferring to high speed. Depressing the "high" button will not start the motor. The automatic sequence control relay insures that the motor will always start at low speed and pass to high speed automatically if the "high" button is depressed. On all three types, if the motor is operating at one speed, it can be trans-



The Class "HM-2" Aftercooler fits close to the wall, and requires little space.



Counter-current flow of cooling water and air insures maximum efficiency and reduces the amount of water required. A moisture separator is contained in the base.

Are you losing money that an aftercooler would save?

If you use compressed air, you may be paying for an aftercooler, even though you don't have one. Surprisingly large amounts of moisture are carried through compressors, condensing when the air cools in the lines, and giving rise to many harmful and costly effects.

In most instances, the best method of eliminating these losses is by cooling the air and removing most of the moisture before the air enters the receiver. Ingersoll-Rand Class "M" Aftercoolers are highly efficient de-hydrators. They operate without attention and at practically no cost except for cooling water. They occupy little floor space.

The cost of one of these units is frequently offset within a short time by the saving in lubricating oil, additional life of tools, pipe lines, and hose; and more satisfactory operating conditions in general.

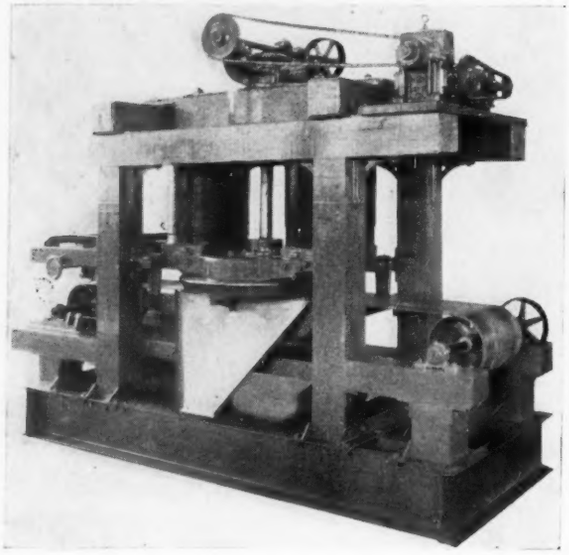
INGERSOLL-RAND CO., 11 Broadway, New York

Branches or distributors in principal cities the world over

For Canada Refer—Canadian Ingersoll-Rand Co., Limited
10 Phillips Square, Montreal, Quebec

Ingersoll-Rand

1002-C



Through the medium of an unusually powerful intermittently magnetized ring, which comes into direct contact with the mixed materials, this machine rapidly separates even highly reluctant magnetic substances

ferred to the other speed by simply depressing the other control button, it being unnecessary to stop the motor.

The mechanism, which consists of two magnetic contactors mechanically interlocked and two sets of thermal overload relays, is mounted in a split type enclosing case which, when opened, provides easy access to the various operating parts.

◆

Powerful Separator Gives Direct Magnetic Contact

Magnetic Mfg. Co., Milwaukee, announces the development of a new magnetic separator in which material to be treated is exposed to direct action of more than ordinarily powerful magnets. This unit, an illustration of which appears herewith, will separate highly reluctant magnetic material heretofore unresponsive to any form of magnetic separation.

The material to be treated is passed through a hopper at the feeding end of a conveyor belt, which distributes it evenly over the belt. It then passes under a revolving, highly magnetized ring which seizes all magnetically responsive material, moves it away from the nonmagnetic material and discharges it into chutes at the sides of the separator. The design is such that the magnetized ring becomes neutralized as it revolves over the discharge chutes, thereby automatically releasing the magnetically separated material.

The unusual feature of this separator is that the material to be treated comes into direct magnetic surface contact with the magnetized ring. The air gap, which cuts down magnetic attraction, has been reduced to the minimum. There are two electromagnets with 140,000 ampere turns in the coil windings. The magnet assembly is an integral unit which permits of adjustments within the frame for varying magnetic intensities without causing internal strains and stresses in the frame. The ring is fitted to a bronze disk actuated by a shaft mounted on ball and roller bearings. The ring itself is tapered over its entire circumference, which tends to intensify the magnetic action. The magnet assembly alone weighs 12,000 pounds.

The separator is a complete, self-contained unit, comprising motor and speed reduction unit, and requires no accessory equipment for operation. Its capacity varies according to the materials to be processed, its design being such as to provide maximum capacity in every case.

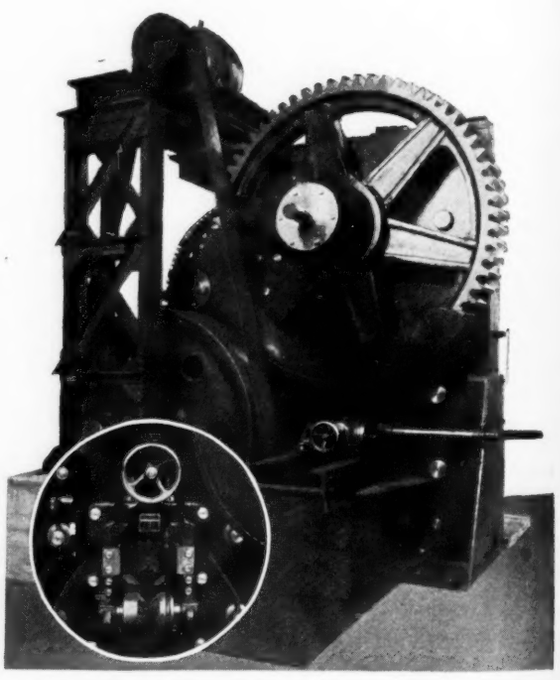
◆

Heavy Billet Shear Cuts Tough Metal Clean

Henry Pels & Co. Inc., 90 West street, New York, has designed a new type of heavy billet shear with cold cutting capacity up to 7⅝ inch round stock. The machine, shown in the accompanying illustration, differs in many respects form former machines of its size.

Among the innovations is a band brake on the eccentric shaft which is controlled by the clutch mechanism so as to automatically stop the shaft at the highest point of the eccentric. A special back-lash pin is built into this clutch, which does away with the back-lash difficulty often met with when cutting unusually hard steel. These two features assure smooth, trouble-free clutch operation, which is important when cutting high-tensile strength alloy steels.

The knives are of a new design, which makes it possible to obtain much smoother cuts than heretofore. These new knives can be furnished for cutting square as well as round stock, both of which they will cut with a marked improvement in squareness of the cut and condition of its surface. They also allow shearing of grades of steel which heretofore could not be sheared clean.



This powerful machine will shear smoothly and squarely, billets of unusual hardness or toughness up to 7⅝-inch round or equivalent. Inset shows method of mounting and adjusting the new style knives

Signs of Improvement Still Control

Market Indicators Moderately Favorable Despite Slack Automotive and Railroad Buying—Bridge Work Notable—Firmer Prices Still Sought

THOSE steel market reports which do not record slight improvement in demand this week reveal no worse than a static condition. Superficially at least, the betterment of the past few weeks is maintained and there still is a unanimity of opinion that the corner has been turned, although concerning the extent and rapidity of recovery reservations continue.

Many discern in the price situation, which is spotty and somewhat contradictory, a slow accretion of strength. There are numerous indications that large consumers of steel appraise present levels as the bottom. Some automotive interests, for example, seek contracts for the first half of 1931, while an electric refrigerator manufacturer would cover first quarter requirements. Producers vacillate in pricing current and fourth quarter needs, but refuse such long-time commitments.

Eastern plate mills are endeavoring to eliminate concessions under 1.70c, Coatesville. In the East there is talk of a $2 per ton rise in structural steel and concrete bars, though at Chicago these products are weaker. Pittsburgh district makers of heavy steel are endeavoring to stabilize at 1.60c to 1.65c. In some quarters recent advances in sheets are not observed. Producers note that some users who recently pressed for concessions are now willing to continue current levels into the fourth quarter.

In point of production, steel is almost passive this week. Operations at Cleveland have advanced from 41 per cent to 50, and at Buffalo from 48 per cent to 53. Birmingham and Pittsburgh hold at 55 per cent. Chicago mills are down two points to 55 per cent, and Youngstown one point to 58. Steel corporation subsidiaries this week average about 68 per cent, maintaining the entire industry at about 60.

Bridge work dominates an active structural market. Two New Jersey bridges being placed call for 15,900 tons. West Virginia has ordered 3500 tons and Kentucky 3190 tons, the latter having 8000 tons pending. A bridge at Milwaukee requires 5000 tons and one at St. Rose, Que., 3000 tons. At New York, new inquiry is lighter. Structural awards this week, at 27,288 tons, compare with 47,615 tons last week and 45,855 tons a year ago. One of the largest and most modern structural mills in the country is breaking production records.

Specifying and contracting for sheets at Pittsburgh is much improved despite light automotive coverage, one maker having the best week since April. Tin plate mills are finding drought damage exaggerated, and rush orders maintain operations averaging 70 per cent and promise to make 1930 output 90 per cent of record 1929. Strip steel demand at Pittsburgh is a shade better. Wire products are moving better at Worcester, Cleveland and Chicago. Cold-finished bar specifying is more active.

Alloy steel bar releases are broader at Detroit, but bars generally are handicapped by slack automotive buying. Plates are more active at Cleveland, New York and Chicago, pipe-mill requirements sustaining 85 per cent mill operations at Chicago. Some letdown is noted in line pipe manufacture at Youngstown.

With the withdrawal of the Illinois Central inquiry for 2300 freight cars only 110 cars are in the market—the least in ten years. Track material buying, however, is approaching. Chesapeake & Ohio is inquiring for 8000 tons of angle bars, spikes and bolts.

There are signs of improvement too in raw materials. Pig iron is more active at Chicago, Cleveland and New York, automotive shipments expanding and more interest being evident in forward requirements. The week's sales at Cleveland totaled 16,000 tons, at New York 10,000 tons. Releases on coke are freer at Chicago. Scrap is in a mixed market, with large accumulations by consumers a deterrent to activity and a stronger price situation.

An adjustment in the steel bar price at Pittsburgh lowers STEEL's composite of iron and steel prices 4 cents this week, to $32.64, which compares with an average of $32.99 for August.

Composite Market Averages

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe.

This week (Sept. 17, 1930)	**$32.64**
Last week (Sept. 10, 1930)	**32.68**
One month ago (August, 1930)	**32.99**
Three months ago (June, 1930)	**33.53**
One year ago (Sept. 1929)	**36.50**
Ten years ago (Sept. 1920)	**69.28**

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Sept. 17, 1930	Aug. 1930	June 1930	Sept. 1929
PIG IRON				
Bessemer, del. Pittsburgh	$20.26	20.26	20.76	20.76
Basic, valley	18.00	18.00	18.50	18.50
Basic, eastern del. eastern Pa.	18.25	18.00	18.75	19.85
No. 2 foundry, del. Pittsburgh	19.26	19.26	19.76	19.76
No. 2 foundry, Chicago	17.50	17.50	18.40	20.00
*Southern No. 2, Birmingham	14.00	14.00	14.00	14.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	20.00
**No. 2X, Eastern del. Phila.	19.76	19.76	20.26	22.26
Malleable, valley	18.50	18.50	19.00	19.00
Malleable, Chicago	17.50	17.50	18.40	20.00
Lake Superior, charcoal, del. Chi.	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	18.63	18.63	19.13	19.13
Ferromanganese, del. Pittsburgh	103.79	103.79	103.79	109.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $12 to $13, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.60	2.50	2.50	2.65
Connellsville foundry, ovens	3.50	3.50	3.50	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	31.00	31.00	31.25	35.00
Sheet bars, open-hearth, Pitts.	31.00	31.00	31.25	35.00
Billets, open-hearth, Pittsburgh	31.00	31.00	31.25	35.00
Wire rods, Pittsburgh	36.00	36.00	36.00	42.00

	Sept. 17, 1930	Aug. 1930	June 1930	Sept. 1929
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.65	1.75	1.95
Steel bars, Chicago	1.70	1.75	1.85	2.05
Steel bars, Philadelphia	1.94	1.94	2.04	2.27
Iron bars, Chicago	1.75	1.80	1.90	2.05
Shapes, Pittsburgh	1.60	1.64	1.70	1.95
Shapes, Philadelphia	1.76	1.67	1.77	2.06
Shapes, Chicago	1.70	1.75	1.80	2.05
Tank plates, Pittsburgh	1.60	1.64	1.70	1.95
Tank plates, Philadelphia	1.80½	1.81	1.91	2.15
Tank plates, Chicago	1.70	1.75	1.80	2.05
Sheets, blue anl., No. 13, Pitts.	2.15	2.15	2.15	2.85
Sheets, black, No. 24, Pitts.	2.45	2.47	2.55	2.35
Sheets, gal., No. 24, Pittsburgh	3.00	3.09	3.20	3.50
Sheets, black, No. 24, Chicago	2.60	2.60	2.70	3.10
Sheets, blue anl., No. 13, Chicago	2.30	2.30	2.30	2.50
Sheets, galvanized, No. 24, Chi.	3.25	3.20	3.30	3.75
Plain wire, Pittsburgh	2.30	2.30	2.30	2.45
Wire nails, Pittsburgh	2.00	2.05	2.15	2.50
Tin plate, per base box, Pitts.	5.25	5.25	5.25	5.35
SCRAP				
Heavy melting steel, Pitts.	15.75	15.19	15.10	18.45
Heavy melting steel, eastern Pa.	12.75	12.50	13.25	16.38
Heavy melting steel, Chicago	12.25	12.00	12.05	15.05
No. 1 wrought, eastern Pa.	14.25	14.25	15.25	16.13
No. 1 wrought, Chicago	11.25	11.25	11.50	15.70
Rails for rolling, Chicago	14.50	14.50	14.55	17.60

Sheets

Market at Pittsburgh Shows Substantial Improvement—Prices Not Generally Tested

SHEET PRICES, PAGE 73

Pittsburgh—Sheet business shows a more substantial improvement in specifications, while the increase noted in contracting recently continues. Recent orders for some producers were the best in five months and business makes a favorable showing despite the fact orders from the automotive industry are confined to small lots. It has been intimated to sheet producers, however, that improved automotive operations are in prospect and that an increase in sheet tonnage is not unlikely. Producers are not seeking contracts but are booking a number for shipment over the remainder of the year. Requests for contracts covering longer periods are being rejected. Radio equipment manufacturers continue to increase their operations, while tank and drum makers still are taking good tonnages. Jobbers also have increased purchases. Prices show little additional strength. Black sheets usually are quoted 2.45c but reports of 2.35c have not entirely disappeared. Galvanized usually are 3.00c, with some business still commanding 3.10c. Blue annealed sheets appear slightly stronger at 2.00c with autobody 3.60c.

New York—Most sheet sellers have firmed up on prices, quoting black at 2.45c, Pittsburgh; galvanized 3.00c to jobbers and 3.10c to the general trade. Blue annealed plates are 2.00c, and sheets 2.15c. Inquiries are more numerous, for testing the market.

Philadelphia—Blue annealed and black sheet prices reflect a firmer tone. The blue annealed jobbing mill product now is 2.00c and 2.15c, base, Pittsburgh, for heavy and light gages, respectively. New sales show this level well maintained. Common black sheets appear firm at 2.45c, although no test has developed on highly finished sheets taking large extras. Galvanized sheets are not yet established at 3.10c, as several good sales were made in the past week at 3.00c.

Buffalo—District sheet mills are operating at 45 to 50 per cent. Business is somewhat improved.

Youngstown, O.—Opening of mill books for fourth quarter at 2.45c for common black, 3.60c for autobody and 3.10c for galvanized has not brought out any large increase in the volume of new business. Operations of mills here have not changed materially.

Cleveland—Sheet tonnage does not show the expansion expected. Black sheets still are available at 2.35c, Pittsburgh; autobody can be had at 3.50c, and furniture at 3.60c. Prices announced for fourth quarter are $2 a ton higher. Blue annealed have been sold at 2.00c and 2.15c for No. 10 and No. 13 gages, respectively. Galvanized are quoted at 3.10c, but buyers continue to offer to pay 3.00c. Only early requirements are covered.

Cincinnati—New business booked by district sheet mills was somewhat better than in the preceding week. Automotive and radio demand improved enough to offset seasonal shrinkage in road materials.

Chicago—Sheet mills in this territory now are quoting prices for fourth quarter as announced a week ago. These quotations represent a strengthening from some of the prices made on black and galvanized recently in this territory. Orders are not improving to a marked extent. Slightly better specifications for corrugated galvanized sheets in the southwestern roofing industry are reported. Mill quotations in this district now are 2.55c for No. 24 black, 3.20c for No. 24 galvanized, 2.25c for No. 13 and 2.10c for No. 10 blue annealed.

St. Louis—Sheet producers report a slight improvement in business. Specifications from the automotive industry are larger. Quotations are unchanged but the trend of prices is easier.

Birmingham, Ala. — Sheet mills are operating at about 50 per cent and are stocking some material. Prices are unchanged.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

SHEET MILL BLACK, NO. 24

Pittsburgh base	2.45c
Detroit, delivered	2.76½c to 2.81½c
Philadelphia, delivered	2.74c
Gary, Indiana Harbor	2.55c
Chicago, delivered	2.60c
Birmingham, base	2.65c
St. Louis, del.	1.80½c

TIN MILL BLACK, NO. 28

Pittsburgh, base	2.70c to 2.80c
Gary, base	2.90c to 3.00c

GALVANIZED NO. 24

Pittsburgh, base	3.00c to 3.10c
Philadelphia, delivered	3.29c to 3.39c
Gary Indiana Harbor	3.20c
Chicago, delivered	3.25c
Birmingham base	3.20c to 3.25c
St. Louis, del.	3.45½c

BLUE ANNEALED SHEETS NO. 13

Pittsburgh, base	2.15c
Chicago, district mills	2.25c
Chicago, delivered	2.30c
St. Louis, delivered	2.50½c
Philadelphia, delivered	2.44c
Birmingham	2.30c

BLUE ANNEALED PLATES, NO. 9-10

Pittsburgh, base	2.00c
Chicago, district mills	2.10c
Chicago, delivered	2.15c
Philadelphia, delivered	2.29c
St. Louis, delivered	2.35½c
Birmingham	2.15c

AUTOMOBILE NO. 20

Pittsburgh, base	3.60c

FURNITURE NO. 24

Pittsburgh	3.60c to 3.70c

Tin and Terne Plate

Prices per 100-pound box Pittsburgh

Tin plate, coke base	$5.25
Gary, Ind., base 10 cents higher.	
Long ternes, 24, primes	3.55c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. Pittsburgh, Cleveland base
(Per 100 pound keg)

Standard wire nails	$2.00 to 2.10
Cement coated nails	2.00 and 2.10
Galvanized nails	4.00 and 4.10

(Per pound)

Polished staples	2.50c and 2.60c
Galvanized staples	2.75c and 2.85c
Barbed wire, gal.	2.70c and 2.80c
Annealed fence wire	2.20c and 2.30c
Galvanized wire	2.65c and 2.75c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.30c
Spring wire	3.30c
Wire, delivered Detroit	2.53½c
Nails, delivered Detroit	$2.38½

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.75c
Struc., c.l., Chicago	2.85c
**7/16-inch and smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70 to 70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Steel Plates

Base, Pittsburgh	1.60c
Philadelphia, del.	1.80½c
New York, del.	1.88c
Boston, del.	2.05c
Chicago, base	1.70c to 1.75c
Cleveland, delivered	1.78½c to 1.88½c
Lackawanna, N. Y., base	1.80c
Birmingham, base	1.80c to 1.85c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	2.15c to 2.25c
St. Louis, del.	2.00½c

Structural Shapes

Base, Pittsburgh	1.60c
Philadelphia, del.	1.76c
New York, del.	1.75½c to 1.85½c
Boston, del.	1.88½c to 1.98½c
Chicago, base	1.70c to 1.75c
Cleveland, delivered	1.83½c to 1.88½c
Lackawanna, N. Y.	1.80c
Birmingham, base	1.80c to 1.85c
Pacific Coast, c.i.f.	2.25c
Detroit, del.	1.91½c to 1.96½c

Bars

SOFT STEEL

Pittsburgh, base	1.60c to 1.65c
Chicago, base	1.70c to 1.75c
Birmingham, base	1.80c to 1.85c
Lackawanna, N. Y., base	1.85c
Pacific Coast, c.i.f.	2.35c
Cleve. base, local del.	1.70c
Do, outside delivery	1.65c
Philadelphia, del.	1.94c
New York, delivered	1.98c
Boston, delivered	2.05c
Pittsburgh, cold finish	1.80c
Pittsburgh, forg. qual.	1.90c

RAIL STEEL

Chicago Heights	1.65c
Eastern mills	1.65c

IRON

Chicago, base	1.75c
New York, delivered	1.93c to 1.98c
Philadelphia, delivered	1.94c to 1.99c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.90c to 2.00c
Stock lengths, mill	1.65c to 1.75c
Chi. billet, over 500 tons	1.85c
30 to 200 tons	2.00c
Under 30 tons	2.45c to 2.85c
Chi., rail steel, over 30 tons	1.50c
Under 30 tons	2.10c to 2.50c
Philadelphia, cut lengths	2.04c to 2.09c

Cold-Finished Steel

Bars, Pitts., Chi., Buff., Cleveland	2.10c
Do, delivered, Detroit	2.20c
Shafting (turned, polished) Pitts., Buffalo	2.10c
Do, (turn., ground) mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets, 35c; plates 31c; bars 28c

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	22c	23.5c	26c	31c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	6.70 to 6.80 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bar Base is 2.65c

S.A.E	Alloy Diff.	S.A.E	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80-1.10	
2300	1.50	Cr.	0.45
2500	2.25	5100 Chr.	
3100	0.55	spring	0.20
3200	1.35	6100 bars	1.20
3300	3.80	6100 Spring	0.95
3400	3.20	Chr., Ni., Van.	1.50
4100 .15 to .25 Mo.	0.50	Carbon Van.	0.95
4600 .20-.30 Mo.		9250 (flats)	0.25
		9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.75c
Hot strip 6 1/16 to 24-in., Pitts.	1.65c
Hot strip, bands 6 in. and under, Chicago	1.85c
Do, 6 1/16 to 25 in.	1.75c
Cooperage hoop, Pitts.	1.90c to 2.00c
Do, Chicago	2.00c to 2.10c
Cold rolled strip., Pitts., Cleve., 3 tons, over	2.35c to 2.45c
Worcester, 3 tons, over	2.60c to 2.70c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 28.00
Light rails, 25-45, mills	$34.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.80c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.80c
Spikes boat, barge, Pitts	3.00c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plates, mills	$41.50

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham and Chicago

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 73 off

MACHINE BOLTS

All sizes cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 off

Tire bolts, 60, 10 and 10 off.

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 off

***HEXAGON CAP SCREWS**

Milled ..... 80-10-5 off

Upset 1 in. diam. and smaller ..... 85-10 off

***SQUARE HEAD SET SCREWS**

Milled ..... 85-5 off

Upset 1 in. and smaller ..... 80-10-5 off

*Discounts dated Jan. 23, 1930

Cut Nails, Chain, Piling

Cut nails, c.l., mills	2.45c
Do, less carloads	2.55c
Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	2.00c

Bars

Some Feelers Out for Fourth Quarter—Alloy Specifications Better—Prices Little Changed

BAR PRICES, PAGE 73

Chicago—As the close of the quarter nears, several tonnage buyers of bar products are negotiating important contracts covering the remainder of the year. Fair specifications are coming from the three tractor makers with Russian orders, but little domestic tractor or implement business is in sight. Alloy bar mills again have been given further automotive releases from the Detroit district. Operations of the alloy mills are about 50 per cent. In the absence of definite price announcement for fourth quarter, mills are booking future soft steel bar business at present levels, which have settled to about $2 a ton over Pittsburgh quotations.

New York—Steel bar mills are quoting more firmly at 1.65c, Pittsburgh, and in the case of at least two important sellers, this price has been named for fourth quarter. Improved demand from the drop-forging interests continues, though general demand is showing little change.

Philadelphia—Steel bars continue 1.60c to 1.65c, Pittsburgh, but some mills are now quoting 1.65c as the minimum, particularly on fourth-quarter tonnages and this is having the effect of increasing current specifications.

Pittsburgh—Steel bar demand continues quiet from practically all consuming industries. Cold-bar finishers are one of the few exceptions to continue light demand during the past several weeks. Producers have not opened fourth-quarter books and little attempt as yet has been made to strengthen prices, which continue 1.60c to 1.65c, Pittsburgh.

Cleveland—The market for soft steel bars continues erratic, but through the day-to-day fluctuations the tonnage maintains a parity with August. Automotive requirements continue to be disappointing, but it is believed they will go no lower. Implement manufacturers are cautions buyers. Bolt, nut and rivet manufacturers' needs are a shade lower. For most consumers carbon bars are 1.70c, base, Cleveland, for local delivery and 1.65c, base, Cleveland, for outside shipments. Variations, however, are noted, but there seems to be a slight tendency to stiffen.

Otis Steel Co., Cleveland, finds August furnished its electric steel foundry the largest month's shipments in its history. Its output is small alloy castings. The recent volume has resulted from large orders for castings used in construction of electric welding pipe mills.

Sheet Metal Distributors Plan Mid-Year Meeting

Merchandising and distribution problems as they relate to every phase of the industry will be thoroughly reviewed by the National Association of Sheet Metal Distributors in the mid-year meeting of the association, Oct. 20-23, at Marlborough-Blenheim hotel, Atlantic City, N. J. Principal addresses on the program include, "Comparison of Net Profits Made During the Past Three Years by Hardware Retailers, Mail Order Houses and Department Stores," by W. B. Allen, president, National Retail Hardware association, Palo Alto, Calif.; "From the Outside Looking In," by J. P. Margeson, and "Conditions in the Steel Industry."

Other subjects to be presented include "The Problems in Connection with the Distribution of Sheet Steel," "The Profitable Merchandising of Copper and Brass Products," "Developing Sales of Tin and Terne Plate," "Cooperation versus Competition in Connection with Eaves Trough and Conductor Pipe," "The Importance of a Satisfactory Turnover," and "Analyzing Customers' Accounts."

Plates

More Oil Tank and Pipe Work Appears—Miscellaneous Sales Steady—Prices Are Easy

PLATE PRICES, PAGE 73

Chicago—New storage tank tonnage is appearing from the oil country. A local fabricator has booked about 1000 tons for Oklahoma refinery work. About 1500 tons have been added to inquiry, making the total 20,000 tons. Plate mills are engaged at 85 per cent, the largest backlogs being for electrically welded pipe tonnage. Plate shipments are being made for the 260-mile Kentucky-Indiana pipe line of the Central Public Service Corp., construction of which will start Oct. 1. The project is to be completed in three months. Despite mill backlogs, plate prices are weak. Even small buyers whose tonnage matches rolling schedules have placed business at 1.65c, Chicago.

Philadelphia—Demand for plates is at about the same level as in recent weeks. Some finishing mills have increased operations slightly but the general level remains 40 to 50 per cent. The market is firmer and preparatory to an advance some makers have been quoting $1 a ton higher, or 1.75c, base, Coatesville, on less than carloads, and have been obtaining this price. The carload price continues 1.70c, and there is less disposition to quote differentials on special tonnages.

Pittsburgh—Little change is noted in plate demand. New tonnage is slow to appear and the leading consumers, including lapwelded pipe producers and fabricators, continue the main supports of the market. Barge business continues quiet and little new tank tonnage is appearing. The price is 1.60c, Pittsburgh, with 1.65c finding little application. The Gulf Refining Co. is taking bids on various designs for a fleet of barges.

New York—Sellers are making strong efforts to eliminate all differentials under 1.70c, base, Coatesville, for plates. They now appear to have definitely established shipyards on that basis, and are endeavoring to firm the market in sales to fabricators. The price is rigidly applied to less than carloads. One leading producer reports business the best in several months, with all orders for early shipment. Deliveries from most mills are available within a week. The United Dry Docks Inc., New York, is low on construction of coast guard cutter No. 54, requiring 1300 tons of steel, of which 800 tons is plates. Inquiry includes 4500 tons of 42-inch steel pipe for Wilmington, Del.

Cleveland—Orders for plates are more numerous than in August. While large individual lots are lacking the trend is toward betterment. Standardized tanks for gasoline filling stations and domestic fuel oil storage are taking a large tonnage.

Some of the steam shovel builders and other miscellaneous consuming lines are fairly active. Plate sellers believe buyers will be willing to contract for fourth quarter at 1.60c, Pittsburgh. A report that 1.55c was current has been disproved.

Contracts Pending

4500 tons, 42-inch steel pipe, Wilmington, Del., bids asked.
800 tons, coast guard cutter No. 54. United Dry Docks Inc., New York, low bidder.

Tin Plate Demand Is Well Sustained

Tin Plate Prices, Page 73

Pittsburgh—Tin plate shipments and specifications continue at a good seasonal rate. Requests for rush shipments of tin plate have been fairly numerous as the result of underestimation of requirements for some food packs. Because of the drought, packs of some vegetables have been heavy in sections of the country other than those that are normally the heaviest producing states. The year's output of tin plate, as the result of satisfactory demand in the past several weeks, is expected to compare favorably with that of recent years and to fulfill predictions made several months ago of a decrease of no more than 10 per cent from the 1929 tonnage. Mill operations continue steady with the average for the industry better than 70 per cent.

Refractories More Active; Prices Steady

Refractories Prices, Page 84

Pittsburgh—Demand for refractories has improved moderately since the first of the month, and is lagging behind the usual seasonal volume. Light operation of steelmaking plants during the past six months has necessitated only routine repair work. Relining of blast furnaces and stoves has been fairly active since midsummer but new work in this respect is slow. Otis Steel Co. has placed a lining for one of its furnaces. Prices of refractory brick are steady and unchanged at $43 for first quality fire clay and silica material.

Atwood-Stewart Vacuum Machine Co., Chicago, has increased its capital stock from $75,000 to 23,000 no par shares.

Railroads

Illinois Central Withdraws 2,300 Cars—Inquiries, Awards Both Slow—Accessories Active

TRACK MATERIAL PRICES, PAGE 73

Chicago—Releases of spikes, track bolts, angle bars and tie plates are growing in volume. Chesapeake & Ohio's inquiry for 5000 tons of angle bars and 3000 tons of spikes and bolts to go with that road's recent 40,000-ton rail purchase, is the only 1931 tonnage in sight. Prospective tie plate tonnage for this inquiry has not yet been named. Only a few hundred tons of miscellaneous rails have been placed. Great Northern's 9000-ton rail order still is pending. It is understood several western roads are preparing estimates of 1931 rail needs for early inquiry. Due to increased coal mining activity light rails are in heavier demand than in the last six months. Freight car shop operations in western territory are being maintained at a low rate by carryover of orders and some miscellaneous repair work. American Car & Foundry Co. is inquiring for finished steel to build ten mine cars. Several car shops are experiencing their first real letdown of the year. Others have been down for some weeks.

New York—The withdrawal of 2300 cars for Illinois Central railroad at least for the present, reduces the pending list to approximately 110 freight cars. This is one of the smallest if not the smallest totals since 1920. Tennessee Copper Co. leases 50 tank cars from General American Tank Car Co. Carnegie Steel Co. is expected to close on 78 cars this week. Norfolk & Western is inquiring for fourth quarter locomotive tires.

Birmingham, Ala.—Backlogs of rails, accessories, and cars are practically dissipated. An effort is being made, however, to maintain working forces but producers are puzzled as to when the first of 1931 requirements will be placed.

Locomotive Orders Placed

Lehigh & New England, 11 locomotives, placed as follows: Six auxiliary locomotives to Bethlehem Steel Co., Bethlehem, Pa., and two locomotives of the 2-10-0 type and three switch engines to Baldwin Locomotive Works, Philadelphia.

The Springfield, Mass. chapter of the American Society for Steel Treating recently elected the following officers for 1930-31: Chairman, A. L. Shields, metallurgist, New England Westinghouse Electric & Mfg. Co.; vice chairman, Wynn Rossiter, Carpenter Steel Co.; and secretary-treasurer, Thomas Jones, Chapman Valve & Mfg. Co.

Cold Finished Bar Price Is Extended; Sales Better

Cold Finished Prices, Page 73

Pittsburgh — Cold-finished steel bar demand improved moderately during the past week partly as the result of a few heavier commitments by automotive interests. Demand from this industry still is spotty, but aggregate tonnage shows a slight improvement over recent weeks. Requirements of other consumers remain in about their former volume. Producers have opened fourth quarter books, with prices unchanged at 2.10c for cold-finished bars and 2.45c to 2.90c for turned and ground shafting. The market is fairly steady at 2.10c with only occasional divergencies noted.

Cleveland—Books were opened Sept. 15 on cold-finished bars for fourth quarter at the 2.10c, Cleveland, price. Specifications have been mounting slightly reflecting an upturn in automotive and various other consuming lines. The belief is that consumption will grow steadily from this time forward.

Ohio Valley Meeting Called

Cincinnati—Ohio Valley Improvement association, chamber of commerce building, Cincinnati, has issued the official call for the thirty-sixth annual convention to be held here Oct. 7 and 8. Senator Joseph E. Ransdell, of Louisiana, who in 1905 made an address at Cincinnati which assisted the formation of the National Rivers and Harbors congress, will be the principal speaker.

Production in India Lower

Washington—June production of pig iron and steel ingots at the Jamshedpur works of the Tata Iron & Steel Co. Ltd. was slightly lower than in May, according to Trade Commissioner Spofford at Calcutta. Steel ingot output in June was 50,255 tons, compared with 52,567 in May; pig iron total in June was 54,433 tons, against 59,992 tons in May.

Structural Shapes

Bridges Account for About Half of Awards—Bridge Inquiries Also Active—McClintic-Marshall Low on 15,900 Tons for New Jersey —7500-Ton Club Pending

STRUCTURAL SHAPE PRICES, PAGE 73

New York—Plain shape material prices are firmer. Mills are maintaining minimum quotations. Efforts will also be made to establish a $2 advance. Minimum on shapes is now 1.70c, Bethlehem, Pa., or 1.855c, delivered, New York. Fabricated structural steel prices also are firming, reacting to this action by mills. McClintic-Marshall Co. was low on the Hackensack and Passaic high level bridges, 15,900 tons of shapes being involved. New inquiry has fallen off. Awards are also lower. Three apartment projects were placed and another, calling for 2000 tons is due to be closed within the next week. Bridge inquiry is steady and heavy.

Boston—Structural awards again were light last week. Only about 600 tons represented jobs 100 tons or more at a time but a fair number of smaller jobs was awarded. Hospitals at Everett and Malden, Mass., 106 and 200 tons, respectively, went to Boston Structural Steel Co. A state bridge at Bristol, N. H., went to Boston Bridge Works Inc.

Philadelphia—Firmer tone is noted in the structural shape market. Principal makers now quoting 1.70c, mill, as minimum on plain standard shapes or 1.76c, delivered, Philadelphia. Thin web wide flange shapes now are 1.70c, base, Bethlehem, Pa., or 1.82c, delivered Philadelphia. Where Pittsburgh delivered price is favorable, plain standard shapes now are 1.60c, base, Pittsburgh.

Pittsburgh—Shape awards to local fabricators generally are light, but Independent Bridge Co. was awarded two state bridges in West Virginia, 3500 tons. Bids on some tonnage remain to be opened Sept. 18 for the Kentucky bridge program, with Mt. Vernon Bridge Co. awarded one bridge requiring 3190 tons. Fabricators in other districts are low on bids opened last week. Louisville & Nashville railroad has placed 1287 tons for a bridge with a local fabricator.

Cleveland—Between 500 and 600 tons of structural shapes for the New York Central freight handling station at East Fortieth street was awarded to Massillon Bridge & Structural Co. A number of small awards also were placed but delays have been encountered on the Cleveland clinic job, Ohio state office building, Columbus, O., Mutual Home bank, Dayton, O., and others. Many builders and owners with material due them from fabricators are calling for expedited deliveries so buildings can get under cover before cold weather. Some contracts for fourth quarter are being negotiated at 1.60c, Pittsburgh. Bids on material fabricated and erected still are exceedingly low.

Chicago—Despite moderately heavy railroad tonnage, structural steel projects in the immediate Chicago district are not encouraging. Outside territory shows improvement. From 4000 to 5000 tons of structural lettings in miscellaneous small lots, mostly under 100 tons, has been reported in the last week, indicating the volume of numerous light tonnage jobs. Plain material prices, at 1.70c to 1.75c, Chicago, now have been adjusted to about $2 a ton over eastern quotations.

Birmingham, Ala.—Continued activity of fabricating shops is noted. Practically all new business is in small lots. Much of the local tonnage has been fabricated and awaits specification as to erection. Several large contracts are in prospect furnishing hopes for continued activity through remainder of year.

Contracts Placed

3190 tons, bridge at Ashland, Ky., to Mt. Vernon Bridge Co., Mt. Vernon, O.

2000 tons, milling plant at Schumacher, Ont., for McIntyre Porcupine Mines Ltd., to Dominion Bridge Co., Toronto, Ont.

2000 tons, bridge at St. Albans, W. Va., to Independent Bridge Co., Pittsburgh.

Awards Compared

	Tons
Awards this week	27,288
Awards last week	47,615
Awards two weeks ago	46,255
Awards this week in 1929	45,855
Av. weekly awards, 1930	36,091
Av. weekly awards, 1929	42,213
Av. weekly awards, Aug.	40,884
Tot. awards to date, 1929	1,597,794
Tot. awards to date, 1930	1,371,466

1500 tons, bridge at Pt. Pleasant, W. Va., to Independent Bridge Co., Pittsburgh.

1400 tons, 19-story penthouse apartment, Third avenue and Sixteenth street, New York, to Easton Structural Steel Co., Easton, Pa.; Abner Distilator, president, building corporation.

1287 tons, bridge, Louisville & Nashville railroad, Louisville, Ky., to American Bridge Co.

1200 tons, hospital, St. Johns, N. B., to St. Johns Drydock & Shipbuilding Co., St. Johns.

1000 tons, 15-story apartment, Christopher and Bleecker streets, New York, to Dreier Iron Works, New York; Silverman-Meltzer-Perlman Corp., builder; H. I. Feldman, architect.

1000 tons, plant, West Virginia Rail Co., Huntington, W. Va., to Hiner Structural Steel Co., Canton, O.

800 tons, dock, board of docks, New Orleans, to Virginia Bridge & Iron Co., Birmingham, Ala.

800 tons, bridge for Union Pacific railroad over Crow creek, Wyoming, to American Bridge Co., Chicago.

750 tons, plant, Universal Atlas Cement Co., Buffington, Ind., to American Bridge Co., Chicago.

700 tons, building for Darling Co., East St. Louis, Ill., to Mississippi Valley Structural Steel Co., Decatur, Ill.

600 tons, state highway bridges, New York, to American Bridge Co., New York.

600 tons, county bridges, Jefferson City, Mo., to Missouri Valley Bridge & Iron Co., Leavenworth, Kans.

600 tons, 19-story stores and offices, Lexington avenue and Fifty-seventh street, New York, to Hay Foundry & Iron Works, New York; Tishman Construction Co., builder; Ely Jacques Kahn, architect.

550 tons, Bahai temple, Wilmette, Ill., to Worden-Allen Co., Milwaukee.

550 tons, freight handling building, East Fortieth street, Cleveland, New York Central railroad, to Massillon Bridge & Structural Co., Massillon, O.; Hecker-Moon Co., general contractor.

500 tons, bridge for Texas & Pacific railroad, at Turnbull, La., to Virginia Bridge & Iron Co., Roanoke, Va.

500 tons, bridge spans at Hope, Ark., to unstated fabricator.

500 tons, bulkhead and shed, Camden, N. J., for Southern New Jersey port commissions, to Robinson Iron & Steel Co., Philadelphia.

500 tons (galvanized), Pennsylvania railroad for electrification program, to Shoemaker Bridge Co., Pottstown, Pa.

500 tons, building, Drexel institute, Philadelphia, to Bethlehem Steel Co., Bethlehem, Pa.

420 tons, New York state bridge No. 3, to McClintic-Marshall Co., Pittsburgh.

400 tons, Horace Mann junior high school, Denver, to Burkhardt & Sons Steel & Iron Works Co., Denver.

325 tons, plant for Hamilton Propeller Co., Burbank, Calif., to Pacific Iron & Steel Co., Los Angeles.

300 tons, garage, Flushing, Long Island, N. Y., to American Bridge Co.

300 tons, state bridge at Bristol, N. H., to Boston Bridge Works Inc., Boston.

300 tons, state bridge, Androscoggin, Me., to Boston Bridge Works Inc., Boston.

250 tons, bridges, Delaware & Hudson railroad, to Shoemaker Bridge Co., Pottstown, Pa.

245 tons, power house extension, Milwaukee, to Worden-Allen Co., Milwaukee.

225 tons, motor bus garage, Omaha, Nebr., to Omaha Steel Works, Omaha.

200 tons, hospital, Malden, Mass., to Boston Structural Steel Co., Cambridge, Mass.

200 tons, Central high school, St. Joseph, Mo., to St. Joseph Structural Steel Co., St. Joseph; Lehr Construction Co., St. Joseph, general contractor.

180 tons, New York state bridges near Buffalo, to Penn Bridge Co., Beaver Falls, Pa.

150 tons, gymnasium, Haverford college, Haverford, Pa., to Robinson Iron & Steel Co., Philadelphia.

110 tons, bank, Bayshore, Long Island, N. Y., to Berkshire Structural Steel Co., Brooklyn, N. Y.

106 tons, hospital, Everett, Mass., to Boston Structural Steel Co., Cambridge, Mass.

100 tons, Nichols Engineering hall Virginia Military institute, Lexington, Va., to Roanoke Iron Works Inc., Roanoke, Va.; J. L. Crouse, Greensboro, Va., general contractor.

100 tons, Fort Worth produce market, Fort Worth Tex., for Texas Ice & Refrigerating Co., to North Texas Iron & Steel Co., Fort Worth; Thos. S. Byrne Inc., Fort Worth, general contractor.

100 tons, bridge, Greenbrier county, W. Va., to Wheeling Structural Steel Co., Wheeling, W. Va.

Contracts Pending

15,900 tons, with 300 tons of steel castings and 5400 feet of steel railing for two cantilever high level bridges over Hackensack and Passaic rivers, New Jersey, route 25 connecting links 3 and 6, Hudson and Essex counties new route to Hudson river tunnel; McClintic-Marshall Co. low bidder; bids opened Sept. 15 by state highway commission, New Jersey.

15,000 tons, state highway bridge, Hackensack, N. J.

11,000 tons, 11 state bridges in Kentucky; 3190 tons, one bridge at Ashland, Ky., let to Mt. Vernon Bridge Co., Mt. Vernon, O.; International Steel & Iron Co., Evansville, Ind., low on one bridge at Spottsville, Ky., 865 tons; E. R. Mills, Charleston, W. Va., low bidder on one bridge, 867 tons at Burnside, Ky.; remainder to come up by Sept. 18.

7500 tons, Olympic club, San Francisco; bids being received.

5000 tons, Western Hills viaduct, Cincinnati Union Terminal Co., Cincinnati; bids opened Oct. 20.

4000 to 5000 tons, Thirty-fifth street viaduct across Menominee valley, Milwaukee department of public works, 2700 feet long, 30 spans, to cost $1,900,000; plans completed; M. C. Cutler, chief engineer, Milwaukee department of bridges and public buildings; David McKeith, commissioner of public works.

3600 tons, Ohio state office building, Columbus, O.; general contract to T. R. Patterson Construction Co., Detroit.

3000 tons, bridge to span Jesus river, St. Rose, Que., for Alphonse Belair, St. Therese, Que.

1100 tons, building, Columbia university, New York.

1000 tons, 5-story building, tuberculosis hospital, Philadelphia; bids being taken, department of health; P. H. Johnson, Widener building, Philadelphia, architect.

1000 tons, medical school building, Columbia university, New York.

1000 tons, addition, Union Trust Co., Cincinnati; bids in.

700 tons, Philadelphia General hospital, Philadelphia.

650 tons, highway bridges near Algonquin, Ill., for state highway commission.

600 tons, power house, Boncar, W. Va.

500 tons, building for Globe-Democrat Publishing Co., St. Louis.

500 tons or more, building, National Electric Lamp Works, Nela Park, Cleveland; plans about ready.

400 tons, warehouse and garage, West End avenue and Sixty-fourth street, New York.

335 tons, bridge, Baltimore & Ohio railroad.

315 tons, bridges, Pennsylvania railroad.

250 tons, state insane asylum, Hillsdale, N. J.

205 tons, bridge at Saligman, Ariz.; bids Sept. 22.

200 tons, state highway bridges, Maryland.

Unstated tonnage, two bridges for Bonaventure terminal area, Montreal, Que., for Canadian National railways, Guy street bridge to have eight spans, 740 feet, and Mountain street bridge to have ten spans, 900 feet. Steel spans to rest on concrete bases, roadway to be of concrete slabs; bids Sept. 24.

Concrete Bars

Awards Slow Up, Inquiries Still Active—Bid on 4000-Ton Cincinnati Bridge—Eastern Prices Firmer, Chicago Levels Still Weak—Six California Jobs Are Let

REINFORCING BAR PRICES, PAGE 73

New York—Mills are taking a firmer price stand on concrete bars. Advances have not been officially announced, but distributors are slower to make long commitments at present levels. An advance in quotations of $2 a ton is expected in some quarters. New awards and inquiry are down slightly. All subway contracts have been awarded except 450 tons, bids on which will open Sept. 26. Almost 3000 tons is pending for New Jersey highways and bridges.

Boston—Four or five attractive concrete bar projects thought active in this section are lagging. In connection with one important job, on which finances were all arranged, some difference of opinion has arisen among the bankers as to who should receive the award. Only about 200 tons in small lots reached the contract stage last week.

Buffalo—Awards of reinforcing steel in this market are increasing. This week's reports show 525 tons sold by a district producer for a new grain elevator here, also 180 tons for a Niagara Falls school.

Pittsburgh — Incoming concrete bar tonnage is well sustained. The inquiry volume and prospective work indicate fair activity for a number of weeks. Booth & Flinn Co., Pittsburgh, was awarded the general contract for a bridge at Knoxville, Tenn., requiring 1500 tons of bars. Bars for the Kentucky bridges still pend.

Chicago—With the slowing down in reinforcing bar inquiries has come sharp competition among fabricators and a consequent weakening in billet bar quotations. Attractive inquiries have resulted in the waiving of cutting, bending and engineering extras as well as in the base quotation of 1.85c for lots of 200 tons and over. Bids also disclose shading of the 1.50c tonnage price for rail steel bars. Illinois highway commission is letting 700 tons in bridge work.

Awards Compared

	Tons
Awards this week	3,777
Awards last week	4,797
Awards two weeks ago	6,663
Awards this week in 1929	3,294
Av. weekly awards, 1929	5,849
Av. weekly awards, 1930	6,749
Average weekly awards Aug.	6,461
Total awards to date, 1929	236,209
Total awards to date, 1930	256,485

Contracts Placed

700 tons, Pennsylvania railroad work, to Jones & Laughlin Steel Corp., Pittsburgh; Turner Construction Co., general contractor.

700 tons, four Cook county, Illinois, bridges, to Paschen Bros. Inc., and E. J. Albrecht Co.

525 tons, grain elevator for International Milling Co., Buffalo, to Buffalo Steel Co., Buffalo.

390 tons, Boston avenue viaduct, Tulsa

(*Concluded on Page* 81)

Strip

Unchanged Price Named for Fourth Quarter—Business Better Than August—Prices Steady

STRIP PRICES, PAGE 73

Pittsburgh—Strip steel tonnage continues to run slightly ahead of the corresponding August period. Most of the improvement is coming from buyers other than automotive interests though there has been moderate improvement in requirements of the latter. A number of buyers who had been out of the market for several weeks are showing increased interest in future requirements but there is no rush to cover fourth quarter contracts. Producers are naming unchanged prices for that period. Shading is no more pronounced than during recent weeks on hot. Operations continue 40 to 50 per cent for hot mills and 35 per cent for cold.

New York—Hot strip business remains light, with prices steady at 1.65c and 1.75c, Pittsburgh, respectively, on the two principal groups. Cold-rolled strip holds at 2.35c to 2.45c, Pittsburgh, the inside figure more representative.

Philadelphia—Hot strip continues 1.75c, Pittsburgh, for widths up to 6 inches; 1.65c for 6 to 24 inches and 1.80c and 1.95c, blue annealed basis, on widths over 24 inches, but the hot strip market tone appears easy. Cold strip is generally 2.35c, Pittsburgh.

Youngstown, O.—Pickup in new business for both hot and cold-rolled strip has taken place, largely coming from auto parts makers. Through the volume of new business is not large it is encouraging. The reaffirmed prices on both grades of strip appear to be holding steadily.

Cleveland—While hot and cold-strip steel manufacturers are willing to book fourth-quarter tonnage at present levels, of 2.35c to 2.45c, base, Cleveland, for cold and 1.65c and 1.75c, base, Pittsburgh, for wide and narrow hot strip respectively, they encounter considerable indifference on the part of their customers toward future commitments.

Warehouse Sales Quicken As August Rate is Bettered

Warehouse Prices, Page 95

St. Louis—Slight improvement in business, due to purely seasonal influences, is reported. Prices, except on sheets, are fairly well maintained. The larger volume of buying is traceable chiefly to the general manufacturing trade and miscellaneous sources. Depleted stocks are being replenished by industrial concerns in preparation for fall programs. Purchasing by railroads is confined to absolute necessities. The call for hoops and bands and the general run of cooperage supplies is fairly brisk. On the other hand, wire and wire products are moving slowly.

Excepting galvanized varieties, sheets are slow, with an easier price trend but without change.

Boston—Good assortment of small projects being developed in New England continues to provide a fair amount of business. While practically all of these are from five to 15 tons, the number of orders helps the situation materially. There has been good nail business for several weeks.

New York — Jobbing demand shows further slight improvement. Jobbers generally look for the average for this month to be substantially higher than August. Prices are steadier. This is particularly noticeable in sheets, which until recently had been showing softness.

Philadelphia—Jobbers say business continues dull and prices are unchanged. Cold strip is unchanged at 4.85c, base, from stock.

Buffalo—Ability of steelworks to give prompt delivery on small lots of finished steel continues to cut into warehouse sales. Third-quarter business is running substantially behind that of the same period of last year, with no prospect of a great improvement.

Pittsburgh — Buying has quickened moderately. Demand for heavy products is steady. Sheets have benefited from more active building operations. Sheet quotations have receded gradually the past 30 days with most grades $2 to $3 a ton lower since that time.

Cleveland — Warehouse business here continues in light volume. Little change is looked for this month. Jobbers are maintaining prices with every appearance of firmness.

Cincinnati—Diversified buying in small orders continues to mark warehouse business with tonnage slightly better than in August. Prices are unchanged.

Chicago — Steel warehouse sales have become noticeably more active in the last several days. This does not appear to be a well sustained buying movement. Further reductions have been made in the Twin Cities' warehouse prices. Several hot rolled products are quoted on an average of about $3 a ton lower at St. Paul including steel bars, plates, shapes, hoops, bands and blue annealed sheets.

Operations Hold Except Cleveland, Buffalo Gain

Youngstown, O.—Operations will be slightly lower this week, but incoming orders indicate better operations in the near future. General average is not above 58 per cent. Heavy pipe production has been curtailed to some extent. On one big pipe line the mills got far ahead of the construction crews. Independent steel production embraces 26 of the 51 open hearths with 60 per cent bessemer output. Corporation operations are unchanged at 55 per cent. Another blast furnace at the Ohio Works of Carnegie Steel Co. was banked, leaving two in operation. The former Trumbull furnace of Republic Steel Corp. at Warren, O., was blown out for relining.

Cleveland—With 17 of 34 open hearths scheduled for the week, the district's 50 per cent capacity rate represents the highest in seven weeks. Corrigan, McKinney Steel Co. is up with seven of 14 pouring.

Buffalo—Operations, which have been holding at 48 per cent of open hearth capacity since Sept. 1, will be increased to 53 per cent by the end of this week. It is announced officially that two additional units are to be placed in production by that time.

Pittsburgh—Ingot production is unchanged at 55 per cent. Finishing mill schedules also are steady, with sheets continuing at 50 and tin plate around 70. Strip mills hold at 40 to 50, with pipe 60 to 65.

Chicago—Despite reduced steelworks blast furnace operations as the result of the blowing out of another stack by Inland Steel Co., ingot output remains virtually unchanged at 55 to 57 per cent. Of the 36 steelworks blast furnaces, 15 now are in blast. Illinois Steel Co. has 11 of its 27 active, and Inland Steel Co. and Youngstown Sheet & Tube Co. have two and one respectively, blowing at Indiana Harbor. Wisconsin Steel Co. has one of its three in blast at South Chicago. Finishing mill operations remain unchanged.

Birmingham, Ala.—Thirteen open hearth furnaces are in operation and finishing mills at 50 per cent bring operations to 55 per cent capacity.

Concrete Bars

(*Continued from Page 77*)

Union Station Co., Tulsa, Okla., to Patterson Steel Co., Tulsa.

277 tons, bridge over San Gabriel river, Sacramento, Calif., to unstated interest.

250 tons, telephone building, Elmira, N. Y., to Kalman Steel Co., Chicago; White Construction Co., general contractor, and not J. G. White Engineering Corp., as noted in Sept. 11 issue of STEEL.

185 tons, Fourteenth street wharf, Oakland, Calif., to Pacific Coast Steel Corp.

180 tons, high school, LaSalle, Niagara Falls, N. Y., to Buffalo Steel Co., Buffalo.

150 tons, clubhouse, Miami, Fla., to Joseph T. Ryerson & Son Inc., Chicago.

150 tons, warehouse, Los Angeles Soap Co., Los Angeles, to unstated interest.

120 tons, school, Santa Cruz, Calif., to W. C. Hauck & Co., San Francisco.

100 tons, freight handling building, New York Central railroad, Cleveland, to Concrete Engineering Co., Chicago; Hecker-Moon Co., Cleveland, general contractor; Rice-Jones Co., Cleveland, builder.

100 tons, Bahai Temple, Wilmette, Ill., to Concrete Steel Co., Chicago.

100 tons, light plant, Pasadena, Calif., to unstated interest.

100 tons, paving in Los Angeles county, California, to unstated interest.

Contracts Pending

4000 tons, Western Hills viaduct, Cincinnati Union Terminal Co., Cincinnati; bids opened Oct. 20.

1500 tons, bridge at Knoxville, Tenn.; Booth & Flinn Co., Pittsburgh, general contractor.

200 tons, junior high school, Niagara Falls, N. Y.; bids in.

200 tons, theater, Ocean avenue, San Francisco; bids received.

138 tons, Little Dalton wash storm drain, Los Angeles; bids received.

105 tons, trunk sewer, Beals branch, section A, Louisville, Ky.; bids Oct. 7.

100 tons, under-crossing, Hall avenue, White Plains, N. Y.; bids Sept. 22.

Welding Engineering Announces Officers

Welding Engineering & Research Corp., 25 West Forty-third street, New York, established recently to engage in industrial and scientific welding research and engineering has completed its organization and elected officers. C. A. Adams, Lawrence Professor of engineering, Harvard university, Cambridge, Mass., and consulting engineer, was named president. J. H. Deppeler, vice president, is chief engineer and works manager, Metal & Thermit Corp., New York.

J. W. Owens, director of engineering and secretary of the new corporation, was formerly director of welding, Newport News Shipbuilding & Dry Dock, Co., Newport News, Va. The director of research and treasurer is C. A. McCune, for several years director of research, American Chain Co., Bridgeport, Conn. Leon S. Moisseiff, consulting engineer, New York, and advisory engineer to the Port of New York Authority on the Hudson river and Kill Van Kull bridges; and A. V. deForest, consulting engineer, specializing in physical, magnetic and metallographic engineering were elected members of the board of directors and the technical board.

A completely equipped laboratory for testing and investigating steel is to be opened by the first of the year in Manhattan.

Pipe

Several Large Inquiries Pending—Lettings Small—Worcester, Mass., to Buy 4520 Tons

PIPE PRICES, PAGE 95

Pittsburgh—Little new line pipe business is appearing. Demand for standard pipe holds at the rate of recent weeks, restricted because of slow building. Producers look for little additional business during the remainder of the year in larger sizes of lapwelded and seamless pipe for gas, oil and gasoline lines, but in view of the projects being considered good activity is anticipated for 1931. Oil country goods also are in light demand. Mill operations average 60 per cent, with capacity schedules on lapwelded pipe offset by 30 to 35 per cent rates on buttweld material.

Boston—Cast pipe awards are limited. Private orders, mostly in carload lots, represent a large aggregate. Donaldson Iron Co. was awarded 100 tons for Hillsboro, N. H., and a round tonnage for Massachusetts state water works. One of the largest municipality inquiries in a long time is promised from Worcester, Mass., which is sounding out the market on 4520 tons of 36-inch pipe for sewer reconstruction. Prices continue firm.

New York—Demand for cast pipe continues light. Prices are unchanged, but not tested, at $36 to $37 eastern foundry. Operations have declined on some sizes. Backlogs are low. Some small-lot business is being booked, but inquiry is limited to about 2000 tons for upstate. Colonie, N. Y., business, 325 tons of 6-inch went to United States Pipe & Foundry Co., while 600 tons of 54-inch for Mamaroneck, N. Y., is still open.

Youngstown, O.—While large pipe operating rates have been reduced somewhat by field delays in laying pipe made by local producers, shipments in at least one case being ahead of construction crews, this is expected to pass shortly. Mills are booked on large diameter pipe well into the winter. Meanwhile buttwelded pipe continues in surprisingly large demand. Jobbers' stocks are being rebuilt. Pipe mills here estimate to run the best of any branches of the steel industry.

Cleveland—Buttweld pipe demand continues at almost the low point of the year. Jobbers order occasional carloads. From time to time lots of 100 to 150 tons are purchased for large buildings. Operations average below 40 per cent.

Chicago—Fair buying of cast pressure pipe by utility companies has maintained an average sales week. Detroit waterworks department has tabulated bids for 3100 tons of 8-inch cast pipe, and also has bought 200 tons of fittings and miscellaneous pipe for filtration work. Racine, Wis., bought 490 tons of 24-inch pipe on the basis of about $37, Birmingham. East Youngstown, O., is in the market for about 200 tons of miscellaneous pipe and fittings for filtration plant work. Chicago delivered prices remain unchanged at $35.20 to $46.20.

Birmingham, Ala.—Improvement in cast pressure pipe business felt recently now promises to be maintained through the remainder of year. Several southern municipalities and private interests are considering fair lettings. Birmingham pipe is being shipped steadily to Hattiesburg, Miss., on a contract for approximately 7000 tons. Base price has not been changed for months, $37 to $38 on 6-inch and larger sizes.

Contracts Placed

590 tons, 24-inch cast pipe for Racine, Wis., to United States Pipe & Foundry Co., East Burlington, N. J.

325 tons, 6-inch cast pipe for Colonie, N. Y., Latham water district, to United States Pipe & Foundry Co., East Burlington, N .J.; Solomon & Keis, Troy, N. Y., engineers.

260 tons, cast pipe various sizes, for Raybrook, N. Y., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

104 tons, 4 and 6 inch, class 150, cast pipe for Whittier, Calif., to American Cast Iron Pipe Co., Birmingham, Ala.

AN ENVIABLE RECORD

Newsteel Sheets are made in many classifications and gauges, including Newaloy (of Nirosta Metal—a chromium nickel steel), Enameling, Electrical, Automobile, Steel Furniture, Full Pickled, Single Pickled, Black, Blue Annealed, and Copper Bearing.

SAVE WITH STEEL

SHEET STEEL PERFORMANCE THAT SPEAKS FOR ITSELF, AND ADDS TO THE REPUTATION OF THE NEWSTEEL ENGINEER

Out of 262,767 Newsteel Sheet blanks for 22 different units—only 262 failures—less than 1/10 of 1% scrap loss! This is a recent remarkable stamping yield reported by one of the best known automobile body manufacturers in this country. Some of these units ran 100% perfect—22,000 to 50,000 stampings without a failure.

This is but another actual experience example of the quality, uniformity and performance efficiency to be expected by users of Newsteel Sheets of any type. And it is a direct result of the profitable advantages to be derived from the services of the Newsteel Engineer. His study and suggestions on your particular needs will prove valuable in many respects. Call him in.

THE NEWTON STEEL CO., YOUNGSTOWN, O.

Boston Chicago Cleveland Detroit Grand Rapids
Indianapolis New York St. Louis

PLANTS AT NEWTON FALLS, OHIO, AND MONROE MICHIGAN

NEWSTEEL

THE ENGINEERED STEEL SHEET

100 tons of 6-inch cast pipe for Hillsboro, N. H., to Donaldson Iron Co., Emaus, Pa.

Unstated round tonnage of 12 to 48-inch cast pipe for Massachusetts state water works, to Donaldson Iron Co., Emaus, Pa.

Unstated tonnage, 4100 feet, cast pipe, various sizes with fittings, for Panama Canal zone to the United States Pipe & Foundry Co., East Burlington, N. J.

Contracts Pending

4520 tons of 36-inch cast pipe for Worcester, Mass., sewer reconstruction; tentatively sounding out market; formal inquiry later.

3100 tons, 8-inch cast pipe for Detroit; bids tabulated.

2216 tons, 4 to 12-inch, class B, cast pipe for Long Beach, Calif.; bids Sept. 23.

1577 tons, 8 and 12-inch, class 150, cast pipe for Los Angeles; bids received.

525 tons, 24-inch class B cast pipe for Los Angeles; bids received.

436 tons, 16-inch class B cast pipe for Beverly Hills, Calif.; bids received.

200 tons, miscellaneous cast pipe and fittings for East Youngstown, O., filtration plant.

Unstated tonnage, 1500 feet of 18-inch cast pipe with special fittings for Onset, Mass., fire district; bids opened Sept. 17.

Semifinished Steel Limited to Small Lots

Ferroalloy Prices, Page 84

Pittsburgh—Little interest is being shown in future requirements of semifinished steel. Stocks on hand of most consumers are at a low level but consumption has not increased sufficiently to influence the resumption of heavy buying. Most orders consist of small spot tonnages, with business insufficient to provide a thorough test of current quotations. The market usually is $31 for rerolling billets, sheet bars and slabs, with forging billets commanding $36. Wire rods are quiet at $36.

Philadelphia—Billet sales are small. Prices are unchanged at $31, base, Pittsburgh, for rerollers and $38 for forging quality.

Youngstown, O.—Sheet mills are calling for fairly steady shipments of sheet bars. Now that hot and cold-rolled strip demand is picking up, it is expected that billet shipments to nonintegrated strip mills also will be more active. Billets, sheet bars and slabs hold at $31, Pittsburgh and Youngstown.

Cleveland—Demand for sheet bars, billets and slabs shows a moderate increase. The leading merchant producer here has increased the number of its active open hearths from four to seven, of its 14 units. Prices are steady at $31, base, Cleveland and Youngstown, for sheet bars, billets and slabs.

Wire

Demand Better at Chicago and Cleveland, Slow at Pittsburgh —Little Contracting Yet

WIRE PRICES, PAGE 73

Pittsburgh—Business in wire products is slow to improve. Slight gains are noted in demand from some directions, with nails showing a moderate increase in activity of a seasonal nature. Manufacturers' wire demand holds at its former quiet rate, with bolt and nut manufacturers continuing light buyers. The movement of wire and fencing to southern consumers is in fair seasonal volume but demand from the northern agricultural districts still is slow. Producers have not officially opened fourth quarter books but are willing to take business at present prices. The market is $2 to jobbers for wire nails, with plain wire usually 2.30c and wire rods $36.

Worcester, Mass.—A general increase in wire demand was marked this week. The advance was a general one but wire for tire manufacturers led the movement. It was described as a healthy upward movement.

Third quarter specifications will probably develop the largest production for the year. Plain bright wire to dealers is holding at 2.40c, base, Worcester.

New York—Trading in nails is sluggish, but with a slightly firmer tone. Despite concessions of 5 cents a keg, the market generally is $2, Pittsburgh. Bright wire is holding 2.30c, Pittsburgh.

Cleveland—Wire products specifications show a slight increase. Tonnage so far this month is ahead of the August rate. August was slightly ahead of July. Some fourth-quarter contracts for wire, wire nails and wire rods have been written. Manufacturers' wire is unchanged at 2.30c, Cleveland. Some nails have been sold at $2.05, Cleveland, but large jobbers have received a $1.95 quotation.

Chicago—Western wire mills report slightly heavier specifications from jobbers for common wire products. No gains are being shown in manufacturers' wire. Business from the Northwest shows little effect of the drouth. Not much interest is being shown in fourth-quarter contracting, although mills have books open at present prices. Plain wire remains fairly steady at 2.35c, Chicago or Western mills. Nails have been quoted as low as $2.

Members of the Indianapolis chapter of the American Society for Steel Treating recently elected the following officers for 1930-31: Chairman, William T. Richards, Indianapolis Power & Light Co.; vice chairman, John Morris, Schwitzer-Cummins Co.; secretary, William H. Knowles, R. P. Mallory Co.; and treasurer, Axel Weydell, 1545 N. Gale street.

Bolt and Nut Demand Shows Slight Improvement

Bolts, Nuts, Rivets Prices, Page 73

Cleveland—Representative nut and bolt manufacturers note a slight seasonal pickup in demand, shipments remaining within a few thousand dollars of the August rate. Automotive consumption has not yet struck production levels, only small lots being purchased. Jobbers appear distributing their stocks well and are buying actively for replacement. Operations remain about at 50 per cent. Rivet orders are small from diversified consumers among structural, tank and other shops. The 2.75c, Cleveland, price has been reaffirmed for fourth quarter on large rivets.

Pittsburgh—Fourth-quarter contracting for bolts, nuts and rivets is well along, with little opposition to prices, which continue 73 off for bolts and nuts and 2.75c for large rivets. Current business lacks improvement since the first of the month, orders continuing light from practically all consumers, both in number and in tonnage. Operations are down to 40 per cent.

Chicago—Specifications for bolts, nuts and rivets are a shade heavier. Producer operations remain unchanged at 40 to 50 per cent. Fourth quarter contracts are mostly signed, with little indication of the relative percentage of specifications against these obligations. Discounts for bolts, nuts and rivets remain unchanged. Large structural rivets are 2.85c, Chicago.

Office Chair Demand Up

Youngstown, O.—General Fireproofing Co. reports an increase in orders, notably for aluminum office chairs, a new line. Directors declared unchanged quarterly dividends of 50 cents on the common and $1.75 on the preferred.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago, furnace	$17.50
Pittsburgh, district fur.	18.50
Pittsburgh, delivered	19.13 to 19.63
Valley, furnace	18.00
Cleveland fur., local del.	17.50
Philadelphia, delivered	19.26 to 19.76
Virginia, furnace	17.75
Granite City, Ill., fur.	18.00 to 18.50
Buffalo, fur., local del.	18.50
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail Brooklyn	20.91
Buff., all-rail, Newark	19.28
Ala., Bir. fur., local del.	14.00
Alabama, del. Chicago	17.51 to 18.01
Alabama, del. St. Louis	17.42
Alabama, del. Cincinnati	15.69 to 17.19
Alabama, del. Cleveland	18.51
Ala., Phila., dock del.	16.75 to 17.25
Ala., Balt., dock del.	16.50 to 17.00
Alabama, New York dock	17.00 to 17.50
Ala., Boston dock del.	20.21
Tenn., Bir. base, local del.	14.00
Tennessee, del. Cin.	15.69 to 17.19
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	19.00
Buff., all-rail, Brooklyn	21.41
Buffalo, all-rail Newark	19.78
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del. Phila.	19.76 to 20.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	20.00
Eastern, del. Phila.	20.26 to 20.76

MALLEABLE

Chicago, furnace	17.50
Cleveland fur., local del.	17.50
Pittsburgh district fur.	19.00
Pittsburgh, delivered	19.63 to 20.13
Valley furnace	18.50
Buffalo fur., local del.	19.00
Eastern Penna., delivered	19.26 to 20.91
Granite City, Ill., fur.	18.00 to 18.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh dist. fur.	18.50
Pittsburgh, delivered	19.13 to 19.63
Eastern Penn., del.	18.00 to 18.50
Buffalo fur., local del.	18.00
Montreal, delivered	22.50
Valley furnace	18.00

BESSEMER

Valley furnace	18.50
Pittsburgh, delivered	20.26

LOW PHOS

Valley fur., standard	27.00
Philadelphia, standard	24.26 to 24.76
Furnace, copper-bearing	23.00 to 23.50

GRAY FORGE

Pittsburgh district fur.	18.00
Pittsburgh, delivered	18.63 to 19.13

CHARCOAL

Lake Superior, del. Chicago	27.04

SILVERY

Jackson County, O., fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$33; 16—$35.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.60
Connellsville foundry	3.50 to 4.85
New River foundry	6 00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England, del.	11.00
St. Louis, del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell. basis.	5.50
Portsmouth, O., ovens, Connell. basis	5.50
Buffalo ovens	8.00 to 8.50
Detroit, ovens	8.50
Philadelphia, del.	9.00

Iron Ore

LAKE SUPERIOR ORE

Gross Ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.50 to 11.00
North African low phosphorus	10.50
Swedish basic, 65%	9.50 to 10.50
Swedish low phos.	11.00
Spanish, North African basic, 50 to 60%	9.50 to 10.00
Newfoundland fdy., 55%	9.00
Tungsten, spot and future short ton unit, duty paid	$12.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.50

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55%	27 to 28 cents
Indian, 48-50%	27 to 28 cents
Brazilian, 46-48%	25 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$43.00
Georgia, Alabama	40.00 to 47.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	35.00 to 38.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham, Ala.	50.00 to 51.00

MAGNESITE BRICK

Pet net ton

9 x 4½ x 2½	65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½	15.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$31.00
Pittsburgh, bessemer	31.00
Youngstown	31.00
Cleveland	31.00
Philadelphia	36.30
Chicago	32.00
Forging, Chicago	37.00
Forging, Pittsburgh	36.00
Forgings, Philadelphia	41.30

SHEET BARS

Pittsburgh	$31.00
Youngstown	31.00
Cleveland	31.00
Chicago	32.00

SLABS

Pittsburgh	$31.00
Youngstown	31.00
Cleveland	31.00

WIRE RODS

Pittsburgh, Cleveland	$36.00
Chicago	37.00

SKELP

All grades, Pittsburgh	1.65c to 1.70c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$99.00
*Ferromanganese, del. Pittsburgh	103.79
Spiegeleisen, 19-21%, domestic fur. spot†	33.00
*Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	13.00 to 15.00
Ferrochrome, 66-70 chromium, 4-6 carbon. cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.15
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	160.00
Do, one ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east, tide, gross ton	19.50

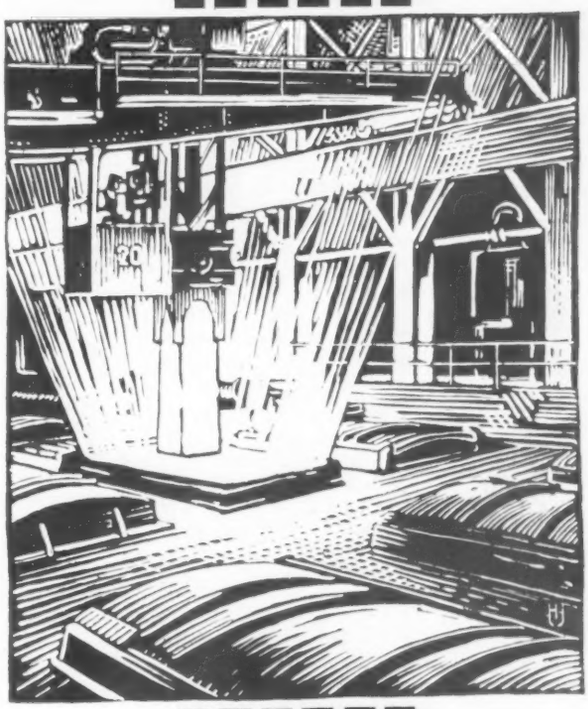
WEIRTON

Pig Iron
Open Hearth Steel
Billets—Slabs—Sheet Bar—Skelp
Coke Tin Plate
Tin Mill Black Plate
Copper Bearing Terne Plate
Hot and Cold Rolled Strip Steel
and
Strip Steel Sheets
Galvanized, Black and Blue
Annealed Sheets
Single Pickled, Full Finished
and Auto Body Sheets

OVER A MILLION AND A QUARTER TONS A YEAR are now supplied to well satisfied customers throughout the nation.

This goes to show that the Weirton Standard of dependable quality and efficient service, is the standard demanded by exacting steel users.

Weirton popularity is due to complete ownership control of raw materials from ore mines to finished product—latest processes—most modern equipment—and a large staff of metallurgists, engineers, designers and highly trained labor bent on building confidence with products.



SAVE WITH STEEL

WEIRTON STEEL CO.

Division of National Steel Corporation

WEIRTON W. VA.

SALES OFFICES IN ALL PRINCIPAL CITIES

Pig Iron

Larger Tonnages Booked and Pending in Lake Districts—Eastern Sales Also Improve

PIG IRON PRICES, PAGE 84

Pittsburgh—Demand for pig iron continues at the dull rate of recent weeks. Foundry operations are moderately larger than a month ago but pig iron purchases are limited to early needs. Most orders call for a few carloads at a time, with the larger lots no more than 200 to 300 tons. The Allegheny Steel Co., Brackenridge, Pa., is inquiring for an unstated tonnage of basic iron for delivery in the fourth quarter. Prices are easy, but as no tonnage is coming out sellers continue to quote $18, valley, for No. 2 foundry iron. Basic is nominal at the same figure. Bessemer and malleable are $18.50, subject to shading.

Boston—Sales during the week totaled 3300 tons, 2000 tons of which was booked by the Mystic Iron Works, Everett, Mass. Universal Winding Co., Boston, is in the market for 1100 tons of No. IX and No. 2X iron. Prices appear slightly firmer.

New York—Pig iron buying has been the briskest in more than a month, approximately 10,000 tons having been closed. It was estimated that close to 50 per cent is for delivery over the remainder of the year. Inquiry also has improved. Including 2200 to 2300 tons of malleable for a New England consumer and approximately 2000 tons of foundry iron for the various plants of the General Electric Co., close to 10,000 tons is being figured by sellers. Prices are unchanged but with less waiving of differentials. Buffalo foundry is $16, base, furnace, and southern foundry $17 to $17.50, New York docks. The American Locomotive Co. has closed on 100 tons of low silicon iron for Schenectady, N. Y.

Buffalo—Current inquiry, including basic, totals 8000 to 10,000 tons. Lots of 1000 tons or more are wanted by consumers of basic, malleable and foundry. Sales are small. Producers are in the market for canal fleets to take iron to the East this month and next.

Philadelphia—A moderate amount of business is noted in the pig iron market. Prices are unchanged.

Youngstown, O.—A Carnegie Steel Co. stack at the Ohio works was banked Sept. 15, and now the Warren, O., stack of the Republic Steel Corp. has gone out for rebuilding. It is expected to blow in about Nov. 1 with a daily capacity of 1000 tons instead of the present 750 tons. New sales of pig iron continue small and prices are steady.

Cleveland—Current sales of pig iron have increased over those of recent weeks, furnace interests with headquarters in Cleveland having booked 16,000 tons in the past week. Melters are buying farther ahead, many orders covering requirements to the end of the year. Some makers have been asked if they will extend present prices into next year. The increase in the volume of business is largely a reflection of the reduction of 50 cents a ton a week ago, bringing the quotation for local and nearby delivery to $17.50, base, furnace. Lake furnace prices are sharply competitive in outside districts, varying according to destination from $16.75 to $17. Shipments into the Detroit district have picked up, while some furnaces serving northern Ohio territory note a slight reduction from the August rate. Foundry iron is freely offered at $12.50, base, Birmingham, bringing the delivered Cleveland price to $18.51, the price of $19.01 having practically disappeared.

Cincinnati—Consumers show no disposition to anticipate forward requirements, sales being confined to carloads for immediate shipment. An order for 200 tons of southern foundry iron from a Central Indiana melter was the largest reported in a total of 1500 tons. Furnace interests are maintaining quotations, but waiving silicon differentials on some inquiries.

Chicago—Inquiries are developing larger tonnages of pig iron, and sales are picking up. Following a brief period of price cutting for several attractive orders furnaces now are seeking to make $17.50, minimum for base grades. Included in inquiries are 5000 tons of basic to be purchased here for an eastern plant; 2000 tons of foundry iron and 400 tons of 8 per cent silvery iron for an Illinois tractor builder; 700 tons of foundry for a northern Illinois melter; 400 tons for a melter near Chicago, and 1000 tons of low phosphorus iron. An automotive plant near here bought several hundred tons of silvery iron at a price considerably below the Jackson county schedule. The Zenith merchant stack at Duluth has been banked, but production at South Chicago has been increased so output remains at about 65 per cent. September pig iron deliveries are running about 10 per cent ahead of those of August.

St. Louis—Foundries report a slight improvement in inquiries for castings, but prices offered are unremunerative. Shipments of pig iron consumers continue at a fair rate, with new buying quiet. Waiving of silicon differentials in some sales have resulted in the lowest prices so far this year.

Birmingham, Ala.—Pig iron sales continue in small lots, with output limited to current shipments. Books have not been opened for fourth quarter but it is indicated no change in prices is contemplated. The local market is $14, base, Birmingham, with concessions offered in outside districts.

Toronto, Ont.—Demand for pig iron has improved, melters showing more interest in future requirements. A few contracts have been placed for fourth quarter. Prices are unchanged.

Ferroalloys Steady; Improvement at Chicago

Semifinished Prices, Page 84

New York—Domestic spiegeleisen, 19 to 21 per cent, is unchanged at $33, furnace, subject to differentials on quantities larger than carloads. Prices of ferromanganese also are steady at $99, duty paid, tidewater, for lots of carloads to 500 tons annually. Specifications continue at a steady, though restricted, rate.

Pittsburgh—Ferroalloy shipments continue at a slow rate with little improvement since the first of the month. The movement closely approximates the steelmaking rate in the district, consumers maintaining only small stocks. Ferromanganese is $103.79, delivered, for small lots with spiegeleisen $33, furnace, but little business is going in the spot market. Ferrotungsten continues in light demand, though the price of ore reflects a strong tone. Prices of other alloys are unchanged.

Chicago—A moderate gain in specifications of ferroalloys is reported in this district, reflecting the recent slight upturn in steelworks and steel foundry operations. Gray iron foundries are casting at a 40 per cent rate, and have cut down sharply in their use of ferrochrome in the last several months. Some foreign and domestic spiegeleisen still is left on the docks at East Chicago. Spiegeleisen is $33, eastern furnace, for carload lots of 19 to 21 per cent, with quantity differentials for tonnages.

Scrap

Large Melters' Stocks Complicate Upward Price Hopes—St. Louis Market Strong

Chicago—Despite lighter offerings of steel scrap from industrial concerns and the country dealers, the huge storage piles of a number of melters are counteracting a stronger price tendency. Nevertheless, the downward movement seems to have been effectively checked. Consumer bookings are making few gains. While offerings of railroad scrap also have become noticeably lighter, the indifference of buyers is creating a stagnant position for most grades. Reports are that Illinois Central will collect no shop scrap for many weeks. Other railroads have curtailed shipments. Few distress cars are appearing on tracks, despite the piecemeal buying of consumers. Restrictions of shipments of rolling mill, open-hearth and cupola grades are

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated.

HEAVY MELTING STEEL

Birmingham	10.50 to 12.00
Boston, dealers	9.25 to 9.50
Buffalo, No. 1	13.00 to 13.75
Buffalo, No. 2	11.50 to 12.00
Chicago	12.25 to 12.50
Cinci., deal.	11.25 to 11.75
Cleve., No. 1	11.75 to 12.25
Cleve., No. 2	11.00 to 11.50
Det., No. 1 deal	11.25 to 11.75
Det., No. 2 deal	9.50 to 10.00
E. Pa. del. mill	12.50 to 13.00
N. Y. del. R. R.	9.00 to 10.50
N. Y. deal. No. 2	6.25 to 6.75
N. Y., deal. yd.	6.00 to 6.50
Pitts. No. 1	15.50 to 16.00
St. L. No. 1 sel	11.50 to 12.00
Federal, Ill.	11.00 to 11.25
Granite C., Ill.	10.00 to 10.25
Valleys, No. 1	15.00 to 15.50

COMPRESSED SHEETS

Buffalo, dealers	11.25 to 11.50
Chicago	10.25 to 10.75
Cleveland	11.50
Detroit, dealers	11.25 to 11.75
E. Pa. new mat.	11.50
Pittsburgh	15.00 to 15.50
Valleys	14.50 to 15.00

BUNDLED SHEETS

Buffalo	9.00 to 9.50
Cinti., deal.	9.75 to 10.25
Cleveland	9.00 to 9.25
Eastern Pa.	9.50 to 10.00
Pittsburgh	13.00 to 13.50
St. Louis	6.50 to 7.00

SHEET CLIPPINGS LOOSE

Chicago	7.50 to 8.00
Cincinnati	7.75 to 8.25
Detroit, dealers	8.00 to 8.50
St. Louis	6.50 to 7.00

STEEL RAILS SHORT

Birmingham	11.00 to 12.00
Boston, dealers	7.50 to 9.25
Buffalo	16.25 to 16.75
Chicago (3 ft.)	13.50 to 14.00
Chicago (2 ft.)	14.00 to 14.50
Cinti., deal.	16.00 to 16.50
Detroit, deal.	15.00 to 15.50
Pitts. (open-hearth, 3 ft. and less)	17.50 to 18.00
St. Louis	14.00 to 14.50

STOVE PLATE

Birmingham	9.00 to 10.00
Boston, con.	8.00 to 8.50
Buffalo	10.25 to 10.50
Chicago, net	9.50 to 10.00
Cinci., deal. net	6.50 to 7.00
Det., net, deal	9.00 to 9.50
Eastern Pa.	10.00
N. Y., deal. mill	6.00
St. Louis	9.00 to 9.50

COUPLERS, SPRINGS

Buffalo	16.00 to 16.50
Chicago	13.50 to 14.00
Eastern Pa.	17.00 to 17.50
Pittsburgh	17.50 to 18.00
St. Louis	12.50 to 13.00

ANGLE BARS—STEEL

Chicago	13.25 to 13.75
St. Louis	11.75 to 12.25

LOW PHOSPHORUS

Buf., billets and bloom crops	17.50 to 18.00
Cleveland bil. and bloom crops	17.50
Eastern Pa.	17.50 to 18.00
Pitts. billet and bloom crops	20.00 to 21.00
Pitts. sheet bar crops	18.00 to 18.50

FROGS, SWITCHES

Chicago	13.00 to 13.50
St. Louis	12.00 to 12.50

SHOVELING STEEL

Chicago	12.25 to 12.50
Cleveland	8.00 to 8.50
St. Louis	11.25 to 11.50

RAILROAD WROUGHT

Birmingham	9.50 to 10.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	10.00 to 10.50
Buffalo, No. 2	13.50 to 14.00
Chicago, No. 1	11.25 to 11.75
Chicago No. 2	12.25 to 12.50
Cinti., No. 2	11.25 to 11.75
Eastern Pa.	14.00 to 14.50
N. Y., No. 1 di	10.00 to 10.50
Pitts. No. 2	15.50 to 16.00
St. Louis, No. 1	9.00 to 9.50
St. Louis, No. 2	11.00 to 11.50

SPECIFICATION PIPE

Boston	7.00 to 7.50
Eastern Pa.	12.00 to 12.50
N. Y., deal.	7.25 to 7.50

BUSHELING

Buffalo, No. 1	11.25 to 12.50
Chicago, No. 1	9.50 to 10.00
Cinn., No. 1 dl	9.25 to 9.75
Cinn., No. 2	6.00 to 6.50
Cleve., No. 2	7.00 to 7.50
Detroit, No. 1 new deal.	9.50 to 10.00
St. L. No. 1	8.00 to 8.50
Val. new No. 1	13.75 to 14.25

MACHINE TURNINGS

Birmingham	7.00 to 8.00
Boston, dealers	4.00 to 4.25
Buffalo	8.25 to 8.75
Chicago	6.25 to 6.75
Cinn., deal.	6.25 to 6.75
Cleveland	6.50 to 7.00
Detroit	5.75 to 6.25
Eastern Pa.	9.00
N. Y., deal.	5.00 to 5.50
Pittsburgh	8.00 to 8.50
St. Louis	6.00 to 6.50
Valleys	10.50 to 11.00

BORINGS AND TURNINGS For Blast Furnace Use

Boston, deal.	3.10 to 3.60
Buffalo	9.25 to 9.75
Cinn., deal.	6.50 to 7.00
Cleveland	7.50 to 8.00
Detroit, deal	5.75 to 6.00
Eastern Pa.	7.00 to 8.50
N. Y., deal.	4.00
Pittsburgh	9.00

CAST IRON BORINGS

Birming., chem.	12.00 to 13.00
Birming., plain	7.00 to 8.00
Boston, chem.	9.00 to 9.25
Boston, deal.	4.00 to 4.25
Buffalo	9.50 to 10.00
Chicago	7.50 to 8.00
Cinn., deal.	6.50 to 7.00
Cleveland	7.50 to 8.00
Detroit, deal	5.75 to 6.25
Eastern Pa.	8.50 to 9.00
E. Pa. chem.	14.00 to 14.50
N. Y., deal.	4.50
Pittsburgh	9.00
St. Louis	6.00 to 6.50

PIPE AND FLUES

Cinn., deal	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	9.25 to 9.75
Chicago, net	8.50 to 9.00
Cincinnati	8.50 to 9.00
Eastern Pa.	10.50
N. Y., deal.	6.50 to 7.00
St. Louis	10.00 to 10.25

FORGE FLASHINGS

Boston, deal.	7.25 to 7.60
Buffalo	11.00 to 11.50
Cleve. ov. 10 in.	10.00 to 10.50
Detroit	9.75 to 10.25

FORGE SCRAP

Boston, deal.	6.00 to 6.50
Chicago	14.50 to 15.00
Eastern Pa.	11.50

ARCH BARS, TRANSOMS

Chicago, net	13.00 to 13.50
St. Louis	13.00 to 13.50

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	11.50 to 12.00
Chi. steelworks	9.50 to 10.00
Cleveland	11.00 to 11.50
Eastern Pa.	11.50 to 12.00
Pittsburgh	12.50 to 13.00
St. Louis	9.25 to 9.75

STEEL CAR AXLES

Birmingham	18.00 to 19.00
Bos., ship. pt.	15.50 to 17.00
Buffalo	16.00 to 16.50
Chicago	16.80 to 17.35
Eastern Pa.	21.00 to 21.50
St. Louis	16.00 to 16.50

SHAFTING

Bos., ship. pt.	13.50 to 14.00
Chicago	16.25 to 16.80
Eastern Pa.	18.50
N. Y., deal.	13.00 to 14.00
St. Louis	13.00 to 13.50

CAR WHEELS

Birming., iron	10.00 to 11.00
Boston, iron	14.00 to 14.50
Buffalo, iron	13.50 to 14.00
Buffalo, steel	16.00 to 16.50
Chicago, iron	13.50 to 14.00
Chi., roll steel	14.50 to 15.00
Cincinnati	12.00 to 12.50
Pitts., iron	15.00 to 15.50
Pitts., steel	17.50 to 18.00
St. Louis iron	12.00 to 12.50
St. Louis, steel	13.75 to 14.25
E. Pa. steel	16.75 to 17.00
E. Pa. iron	14.50 to 15.00

NO. 1 CAST SCRAP

Birming., cup.	11.00 to 12.00
Buffalo (mac.)	12.50 to 13.00
Boston, textile	11.00 to 11.50
Chicago, mach.	13.45 to 14.00
Chi., railroad	11.20 to 11.75
Chicago, agri.	10.90 to 11.50
Cinn., mach. cup., gross	14.50 to 15.50
Cleve. cupola	13.50 to 14.00
Det., net deal	10.00 to 10.50
E. Pa. cupola	13.50
N. Y. cup. deal	9.50 to 9.75
N. Y., del. local foundries	14.00
Pitts. cupola	14.00 to 14.50
San Fran., del.	13.50 to 14.00
Seattle	14.00 to 14.25
St. L. No. 1 ma	11.00 to 11.50
St. L. No. 1	10.00 to 10.50

HEAVY CAST

Boston	10.50 to 11.00
Bos. Mach. cast	13.50 to 14.00
Buffalo, break	8.50 to 9.00
Cleve., break	8.00 to 8.50
Detroit, auto, net deal	11.50 to 12.00
Det., break., dl.	7.00 to 7.50
Eastern Pa.	11.50 to 12.50
N. Y. No. 1 dl.	8.00 to 8.50
N. Y. break. dl.	8.25 to 9.10
Pittsburgh	11.50 to 12.00

MALLEABLE

Boston R. R.	14.00 to 14.50
Buffalo	15.00 to 15.50
Chicago, agri.	11.75 to 12.25
Chicago, R. R.	13.50 to 14.00
Cinn., R. R. dl.	12.50 to 13.00
Cinn., agri., dl.	12.50 to 13.00
Cleve., rail	15.50 to 16.00
Det. auto deal.	13.50 to 14.00
St. Louis, rail	10.00 to 10.50

RAILS FOR ROLLING 5 feet and over

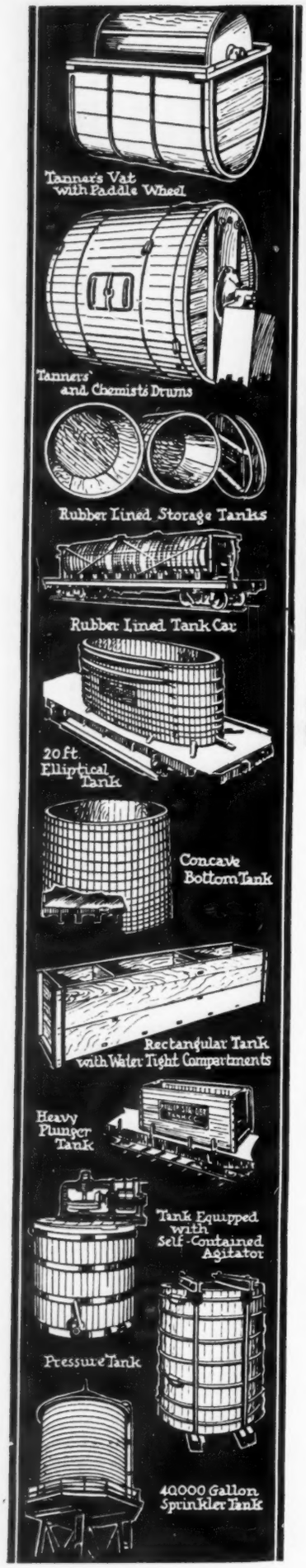
Birming. cup.	12.00 to 12.50
Boston	10.00 to 10.25
Buffalo	13.50 to 14.00
Chicago	14.50 to 15.00
Eastern Pa.	13.00 to 13.50
New York	9.50 to 10.00
St Louis	12.75 to 13.25

LOCOMOTIVE TIRES

Chicago, cut	15.00 to 15.50
St. L. No. 1	13.00 to 13.50

LOW PHOS. PUNCHINGS

Chicago	13.00 to 13.50
Pittsburgh	17.50 to 18.00
Eastern Pa.	17.00 to 18.00
Buffalo	17.00 to 17.50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Tanners' and Chemists' Drums
Rubber Lined Storage Tanks
Rubber Lined Tank Car
20 ft. Elliptical Tank
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Tank Equipped with Self-Contained Agitator
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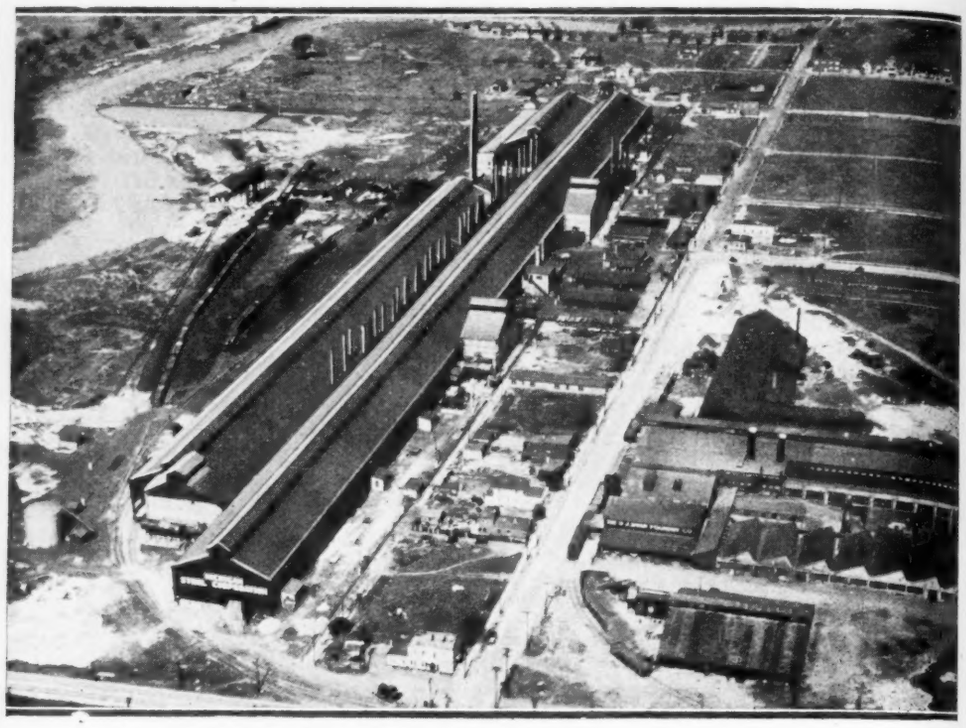

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Cincinnati, O.

continuing. Heavy melting steel remains at $12.25 to $12.50. Contrary to some quotations and reports it is indicated that the price will not go to $13 at this time.

Boston—Conditions are slow in developing change. Continued holding back of materials tends to keep supplies in hands of dealers at low level and brokers offer with some caution. There was a little better demand for pipe and chemical borings recently. As a result, a slightly firmer price existed. Altogether, the expectation is that a firmer price range is not far off, but lack of business holds this in check.

Philadelphia—Scrap market is unchanged and current activity is restricted to small scattered lots.

Buffalo—No interest is shown in the scrap market, except that by dealers buying No. 2 heavy melting to deliver on recently made contracts. The price of this material has firmed up to $11.50 to $12. Some dealers anticipate some No. 1 steel purchases shortly. Other materials are dull and nominal in price.

Pittsburgh—Scrap is in a steady market. Heavy melting steel is unchanged at $15.50 to $16, some additional tonnage being placed last week at the latter figure. Reports are heard of one purchase at $16.50 but with confirmation lacking this price is not reflected in the quotable range. Demand still is spotty with several of the mills out of the market. Blast furnace material is dull.

Cleveland—Iron and steel scrap is slightly easier this week. This has developed as the result of continued absence of consumer demand. Despite increase in operations of the two steelworks interests, neither shows any indication of entering the market. One has issued no releases in a number of weeks, but receives an occasional boat load from Detroit. The other is receiving sufficient material from its railroad source and contemplates no new buying. Both have large stocks. Scrap grades quoted lower this week include heavy melting steel, cast iron borings, mixed borings and short turnings, No. 2 busheling, and axle, machine shop and short shoveling turnings. Slower demand at Youngstown weakens the local market.

Detroit—Production of scrap from the auto plants still is low. Great Lakes Steel Corp. is taking some heavy grades for two open hearths now operating. Bethlehem is moving boat scrap from this district to Buffalo. Prices have shown a firmer tendency and have been marked upward in several grades.

Cincinnati—Several mills here are holding up shipments of scrap indefinitely. This and a generally dull market have failed to cause any marked change in quotations as yet, with heavy melting steel remaining at $11.25 to $11.75. Several grades are lower, in harmony with recent transactions.

Birmingham, Ala. — Inquiry is lacking and tonnage moving is small. Dealers can get all the old material needed. Heavy melting steel prices remain at same level, ranging $10.75 to $12. Consumers buy against early requirements. A little scrap is moving continually, consumers carrying but little tonnage in their yards.

St. Louis—Iron and steel scrap is decidedly strong. Buying is not in large volume, due to a disposition on the part of dealers to hold, but there is a good volume of inquiry, and virtually all mills would take on tonnage if they could reach terms with sellers. Inquiries aggregate above 10,000 tons. Offerings continue on a modest scale. The movement from country shipping points is light, and industries are originating little. Dealers claim they can not purchase at mills' figures, much less turn it over at a profit. As a result a temporary deadlock exists, with only urgently needed material changing hands. The call for rolling mill grades has improved somewhat, especially scrap for converting into reinforcing bars. Rails are not plentiful, and are firm in price. Latest sales of heavy melting steel have been at the top figure of the spread.

Toronto, Ont.—Tonnage involved in scrap sales for the past week showed a higher average than for some time. Some future delivery contracts have been booked recently and inquiries indicate that other consumers will place last quarter contracts. Spot buying is generally confined to small tonnage, but with many consumers running low in supplies, orders are becoming more numerous. Mills were in the market for heavy melting and turnings, but most new business was in iron grades. Prices remain unchanged.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$15.00
Steel axles	13.00
Car wheels	11.00
Stove plate	10.00
Wrought pipe	5.00
Turnings	6.00
Heavy melting steel	8.00

TORONTO

Steel axles	10.00
Iron axles	12.00
Heavy melting steel	9.00
Turnings	6.50
No. 1 mach. cast (net)	11.00
Malleable (net)	9.00

Coke

Market Still Irregular, with Slight Gain in Sales in Some Districts—Prices Are Steady

COKE PRICES, PAGE 84

Pittsburgh — Beehive coke is slightly more active, aided by a fair seasonal demand for domestic grades. Furnace coke is in poor demand by blast furnaces, but moving better for other purposes. Sellers usually quote $2.60 in the spot market.

Production of coke in the Connellsville region for the week ended Sept. 6 was 17,430 tons, compared with 17,110 tons the preceding week and 82,990 tons in the same period a year ago, according to the *Connellsville Courier*.

Boston—New coke orders are scarce but shipments on contracts are at a steady rate. Better demand is noted for domestic grades.

New York—A seasonal but slight improvement is noted in demand for spot furnace coke, which continues steady at $2.60 to $2.75, Connellsville, for standard grades. Standard beehive foundry coke is quiet and unchanged at $3.50 to $3.75, Connellsville, and premium brands at $4.85, Latrobe. By-product foundry coke is $9 to $9.40, delivered Newark, N. J; $11, New England; and $9, Philadelphia.

Cincinnati—Specifications for by-product foundry coke, after a slight upturn earlier in the month, are reverting to shipments in August.

Chicago—Foundry coke shipments are making a fair gain over August, with production at about 70 per cent.

St. Louis—Shipments continue at the August rate. Inquiries from melters in the West and Southwest are more numerous, but contracting is below the average of the past several years. Prices are unchanged.

Birmingham, Ala.—Less than 350 ovens of the 1300 by-product units in this district are idle, but those operating are not at capacity. Some coke is shipped outside the district.

Pacific Coast

Seattle Outstrips San Francisco in Eight Months' Building Permits—Mill Operations Steady, Though Orders Are Light—Awards Small—Unemployment Situation Still Acute

Seattle—Demand for iron and steel in the Pacific Northwest is not brisk, but prices are steady. For the first eight months this year Seattle's building permits exceeded San Francisco's, 4471 against 4464. Values also were larger. Public works awards in the Northwest for the week ended Sept. 6 totaled $1,024,467. Building trades show some improvement but unemployment still is acute. Two foreign steamers have landed at Seattle about 500 tons of shapes, plates, iron and steel wire and spiegeleisen, from British and German ports.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Bars, Plates and Shapes

Steel mills report unchanged operations, but orders are lacking and specifications are few. Four hundred tons of concrete bars are pending for the Edmond Meany hotel, Seattle. Awards include 101 tons to the Northwest Steel Rolling Mills, Seattle, for the Hoh river bridge, Seattle girls' school and a substation for the Seattle light department. Concrete bars are unchanged at 2.30c, while the mill price of merchant bars is 2.25c. Demand for merchant bars is light.

Bids for the Anacortes, Wash., water system, requiring 1200 to 1500 tons of plates, were opened but awards have not been made. Puget Sound Machinery Depot was low bidder for the steel main. Seattle is about to combine two important steel pipe jobs into one project for bids within 60 days, requiring 8000 tons of plates. American Plumbing & Steam Co., Tacoma, Wash., was low bidder at $22,345 for pipe, fittings and storage tank for Tacoma's new steam power plant. Mill prices of plates range from 2.15c to 2.25c.

No important structural projects have developed recently, although fabricating shops are fairly well supplied with work. About 1000 tons of shapes are pending for the Hoh river bridge, Marine drive bridge, Seattle; Fox theater and Howard street bridge, Spokane. The Pittsburgh-Des Moines Steel Co. booked a small contract for the Repertory theatre, Seattle. Prices are steady at 2.25c.

Wholesale jobbers report demand slow. Sheets continue to show more activity than other lines. Prices are unchanged.

Market Is Slow

Sellers are awaiting award of a contract at Anacortes, Wash., requiring considerable cast iron pipe. Spokane has awarded to Hughes & Co., Spokane, a contract for 150 tons of universal pipe. National Cast Iron Pipe Co. has taken 88 tons of 20-inch cast iron pipe for Great Falls, Mont., on a bid of $58,137.

Hood River, Oreg., has awarded contracts as follows in connection with this city's hydroelectric plant and distribution system: Power house, Apple City Electric Co., Hood River, $1912; generating equipment, Pelton Water Wheel Co., San Francisco, $5229; distribution system, J. C. Roberts, Spokane, $25,985.

Old Materials

Ample supplies of steel scrap are being received by local mills. Prices are steady at $9.50 to $11, gross, according to grade. Local stocks are increasing. Cast iron scrap is in small demand. The average price is nominally $12.50 per net ton.

New Projects Come Forward

San Francisco—*(By Air Mail)*—Improvement in demand for iron and steel products on the Pacific coast is slow. A number of new projects are contemplated for negotiation within 30 days. The largest award of the week requires 325 tons of structural shapes for a factory in Burbank, Calif., placed with the Pacific Iron & Steel Co. Interest is now centered on the opening of bids for the Olympic club building in San Francisco, which calls for 7500 tons of shapes.

Bars, Plates and Shapes

Awards of concrete bars total 1624 tons and bring the aggregate for the year to 46,259 tons, compared with 60,447 tons for the corresponding period in 1929. W. C. Hauck & Co. booked 120 tons for a school in Santa Cruz, Calif., and the Pacific Coast Steel Corp. took 185 tons for a wharf in Oakland, Calif. Several highway projects were placed, the total exceeding 300 tons of concrete bars. Included among new inquiries are 200 tons for a theater in San Francisco. No change in out-of-stock prices is noted, 2.50c, base, being firm on carload lots in the San Francisco and Los Angeles districts.

For the first time in six weeks no plate awards exceed 100 tons. Included among new projects planned is a water system for Pasadena, Calif., calling for 56,000 feet of 60-inch pipe. Plate prices are unchanged at 2.15c to 2.25c, c.i.f.

Awards of structural shapes aggregate over 1500 tons and bring the total to date this year to 83,869 tons, compared with 135,572 tons for the same period last year. The majority of current bookings are small. Bids will be opened Sept. 22 for 205 tons for a bridge at Saligman, Ariz.

Although cast iron pipe awards are confined to one project exceeding 100 tons, over 7500 tons are up for figures or pending. Los Angeles has opened bids on 1577 tons and 525 tons. Bids have been opened on 436 tons of 16-inch class B pipe for Beverly Hills, Calif. The largest new inquiry calls for 2216 tons of 4 to 12-inch class B pipe for Long Beach, Calif. Standard steel pipe and oil country goods continue to move in small lots.

Drawback Is Allowed

Washington — Treasury department has announced drawback allowance on steel products manufactured by the Frog Switch & Mfg. Co., of Carlisle, Pa., with the use of imported ferromanganese or ferromanganese domestically produced with the use of imported manganese ores by firms operating under existing drawback regulations.

Republic Books Gas Pipe

The Republic Steel Corp., Youngstown, O., has received an order for 110 miles of electric welded steel pipe for shipment to large natural gas interests in the southwest. The company now has all three units of its electric welding pipe plant at Youngstown at capacity operations, the last unit being started a few days ago. Unfilled orders on hand are sufficient to maintain a high rate of activity for the plant through the late fall, according to officials.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2 points less. Wrought iron pipe, Pittsburgh base.

BUTT WELD

Steel In.	Blk.	Gal.	Iron In.	Blk.	Gal
½	58	44½	½	23	5
¼	62	50½	¾	28	11
1—3	64	52½	1 and 1¼	31	15
			1½ and 2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7 and 8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7 and 8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¼—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill

Random lengths over 5 ft.....55%
Selected lengths, 1 to 18 ft.....53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. $37.00 to 38.00
Four-inch, Birmingham 41.00 to 42.00
Four-inch, Chicago ..... 49.20 to 50.20
Six to 24-inch, Chicago 45.20 to 46.20
Six-inch and over, N. Y. 38.50 to 40.50
Four-inch, New York .... 41.50 to 42.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.15c
Chattanooga..	3.10c
Chicago	2.90c
Cincinnati	3.15c
Cleveland	2.85c
Detroit	3.00c
Houston	3.00c
Los. Ang.	3.40c
New York††	3.10c
Philadelphia .	2.70c
Pittsburgh	2.75c
Portland	3.15c
San Frans. ..	3.40c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.00c
Tulsa	3.65c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga..	3.10c
Chicago	3.00c
Cincinnati	3.15c
Detroit	3.00c
New York††	3.10c
Philadelphia .	2.70c
St. Louis	3.15c
Tulsa	3.65c

REINFOR. BARS

Baltimore	2.50c-3.31c
Boston	3.265c
Buffalo	2.95c
Chattanooga..	3.10c
Cincinnati	3.15c
Cleveland	2.25c-2.44c
Detroit	2.30c-3.00c
Houston	3.00c
Los Ang. cl ..	2.40c
Los Ang. lcl ..	2.70c
New York	2.65c-3.10c
Philadelphia .	2.55c
Pittsburgh	2.75c
San Fran. cl .	2.30c
San Fran. lcl.	2.60c
Seattle	3.15c
St. Louis	3.15c
Tulsa	3.65c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los. Ang.	3.40c
New York	3.10c
Philadelphia .	2.60c
Pittsburgh	2.85c
Portland	3.15c
San Fran. ..	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	3.40c
New York	3.30c
Philadelphia .	2.60c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.40c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

NO. 10 BLUE

Baltimore	3.50c
Bost. 3/16-in..	3.915c
Buffalo	3.50c
Chattanooga..	3.60c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.10c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
New York	3.40c
Portland	4.00c
Phila. *†	3.15c
Pitts.**	2.75c-2.85c
San Fran.	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.95c

NO. 24 BLACK

Balt. *†	3.75c
Boston	4.70c
Buffalo	4.20c
Chicago	3.80c
Cincinnati	4.05c
Clev. ***	3.75c
Detroit	3.95c
Los Ang.	4.70c
New York	3.55c to 3.65c
Phila. *†	3.70c
Pitts.**	3.40c-3.50c
Portland	5.00c
San Fran.	4.35c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.545c
Tulsa	4.45c

NO. 24 GAL. SHEETS

Balt.*†	4.25c
Boston	5.45c
Buffalo	4.40c to 4.60c
Chicago (lc. del.)	4.35c
Chicago (outside shipment)	4.35c to 4.60c
Cincinnati	4.90c
Cleveland***	4.35c
Detroit	4.40c
Houston	5.40c
Los Ang.	5.10c
New York	4.25c
Phila. *†	4.25c
Pitts.**	4.00c-4.10c
Portland	5.50c
San Fran.	5.00c
Seattle	5.50c
St. Louis	4.85c
St. Paul	4.23c
Tulsa	5.35c

BANDS

Baltimore	3.50c
Boston	4.015c-5.00c
Buffalo	3.50c
Chattanooga..	3.30c
Chicago	3.10c
Cincinnati	3.35c
Cleveland	3.10c
Det. 3/16-in. & lighter .	3.30c
Houston	3.65c
Los Ang.	4.30c
New York	3.40c
Philadelphia .	3.00c
Pittsburgh	3.10c
Portland	3.50c
San Fran. ..	3.75c
Seattle	4.15c
St. Paul	3.75c
Tulsa	3.85c

HOOPS

Baltimore	3.50c
Boston	5.50c-6.00c
Buffalo	3.90c
Chicago	3.65c
Cincinnati	3.90c
Cleveland	3.65c
Det. No. 14 & lighter .	3.80c
New York	3.75c
Philadelphia .	3.25c
Pittsburgh	4.10c
Seattle	5.15c
St. Paul	3.70c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.85c
Chicago	3.35c
Cincinnati	3.80c
Cleveland	3.40c
Detroit	3.65c
Los Ang. (a)	4.50c
New York	3.50c
Philadelphia*	3.40c
Pittsburgh	3.35c
Portland (a)	4.50c
San. Fran.(a)	4.25c
Seattle (a)	4.75c
St. Paul (a)	3.85c
St. Louis	3.60c
Tulsa	4.75c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted.
(a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100-in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	6.15c
Cincinnati	6.10c
Clev. (b)	5.95c
Detroit	5.40c
Phila. (c)	4.85c
New York	5.05c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

††Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.
***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

The Story of One
WROUGHT IRON ROOF
50 Years of Service

GLOBE FOUNDRY AND MACHINE WORKS
MANUFACTURERS OF
ROLLING MILL MACHINERY IRON AND BRASS CASTINGS
W. B. CARTER, Manager
NILES, OHIO

All Orders Subject to Strikes or Other Causes Beyond Our Control

Sharon Steel Hoop Company,
Sharon, Pa.

June 16, 1930

Dear Sir:

Attention: Mr. Frank A. Weidman
Manager of Wrought Iron Division

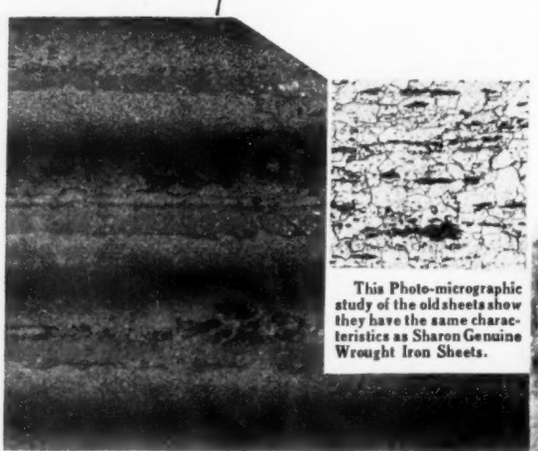
I am glad to write you the history of the Wrought Iron Roof sample I gave you.

This was part of a sheet from the roof of our pattern shop building and was taken off six or seven years ago. I recollect distinctly when the roof was put on, my father paying me, and some other kids, a few cents a sheet for painting them. We got more paint on us than the sheets did. I couldn't have been more than fourteen or fifteen years old then. I'm now seventy-two, so this roof must have given at least fifty years service; and so far as I can remember that was the only time it was painted.

We got these sheets from "the Old Russia Mill" in which my father had an interest. Some local men built this mill to roll Russia Iron but found they couldn't. They then started to roll wrought iron sheets and these were about the first they made.

This building is across from the Pennsylvania Railroad station and is on the banks of the Mahoning River. High water sometimes gets into the shop. So conditions haven't always been easy for the roof.

Yours very truly,
GLOBE FOUNDRY AND MACHINE WORKS
W. B. Carter
Manager



This Photo-micrographic study of the old sheets show they have the same characteristics as Sharon Genuine Wrought Iron Sheets.

Sample of the corrugated black wrought iron taken from the roof of the pattern storage building of the Globe Foundry and Machine Works. Available records indicate the roof was painted but once. Some of the paint still adheres to the metal.

Front view of the pattern storage building.

You *too* can be assured of long life and trouble-free service from Wrought Iron Sheets.

When you need roofing or siding Sharon can now roll your sheets from Byers Genuine Wrought Iron.

Wrought Iron Sheets mean permanence, durability and low maintenance cost.

ASK US ABOUT THEM!

SHARON STEEL HOOP CO.
SHARON, PA.

Mill Products

Base price cents per pound f.o.b. mill, except otherwise specified. Copper and brass product prices based on 10.75c, del., Conn. for copper

Sheets	
Yellow brass (high)	17.62½
Copper, hot rolled	20.50
Lead, full sheets (cut ½c more)	9.25
Zinc sheet (100-lb. base)	9.50
Tubes and Pipes	
Seamless yellow brass (high)	22.50
Seamless copper	22.75
Rods	
Yellow brass (high, full turnings)	15.87½
Naval brass	18.75
Anodes	
Copper, untrimmed	18.00
Wire	
Yellow brass (high)	18.12½

Old Metals

Dealers' buying prices, cents lb.

Heavy Red Brass	
New York	7.25 to 7.50
Chicago	7.00 to 7.50
Cleveland	7.50 to 8.00
St. Louis	7.75 to 8.00
Heavy Yellow Brass	
Cleveland	4.50 to 5.00
Heavy Copper and Wire	
New York	8.50 to 8.75
Boston	8.50 to 8.75
Chicago	8.75 to 9.00
Cleveland	7.50 to 8.00
St. Louis	8.25 to 8.50
Red Brass Borings	
New York	6.75 to 7.25
Yellow Brass Tubing	
Cleveland	4.75 to 5.25
Light Copper	
New York	7.00 to 7.50
Chicago	6.75 to 7.00
Cleveland	6.50 to 7.00
St. Louis	8.00 to 8.25
Light Brass	
Boston	4.00 to 4.25
Chicago	4.50 to 5.00
Cleveland	3.50 to 3.75
St. Louis	4.50 to 4.75
Zinc	
New York	2.25 to 2.50
Cleveland	1.75 to 2.00
St. Louis	2.25
Aluminum	
Clippings, soft, Cleveland	12.00 to 13.00
Clipp'gs, hard, Cleveland	9.00 to 9.50
Borings, Cleveland	5.00 to 5.50
Cast, Cleveland	7.50 to 8.00
Cast, Boston	7.00 to 7.50
Cast, St. Louis	7.50

Secondary Metals

Remelt aluminum No. 12	14.00 to 15.00
Brass ingot, 85-5-5-5	10.75

Metals

Copper Prices Drop Suddenly but Demand Continues to Lag —Mill Products Are Lowered

New York—A sudden decline in copper prices and a further weakening of the market has brought to an end a two weeks' period in which all nonferrous metal prices held remarkably steady in the face of light demand. The recent resistance of prices to a general lack of buying activity and indications of a slight pickup in business at large had been interpreted previously by bullish interests as forecasting a gradual improvement in metals. Larger demand from consumers had been expected to meet autumn needs.

The drop in copper prices, said to have resulted from competition in the brass and copper products trade, has now unsettled the copper market and has caused the future trend to appear far more uncertain than was the case earlier. The weakness of copper is reflected in lowered prices in related markets of brass ingot, scrap, and mill products. In fact, the entire metal market is sharing sympathetically the uncertainty now clearly evident in copper.

Copper—Announcement of a sharp increase of 25,649 tons in stocks of refined copper in North and South America during August was immediately followed by price easiness. The two-price market for copper continues, but at lower levels. On Monday, custom smelters actually sold metal at 10.50c, Connecticut, while producers other than the custom smelters lowered their asking price to 10.75c. At the same time, the leading interest in the copper and brass products trade published reductions of ¼-cent on all mill products as of Saturday, Sept. 13. The action was retroactive and was preceded by a corresponding cut on the part of several leading independents. Even at the lower price levels on copper, sales were extremely light in the domestic market and the export trade was at a virtual standstill.

Tin—Little change has occured in the Straits tin market. Prices here have followed the rise and fall of London quotations, while spot Straits tin has been quoted generally a shade under the 30-cent level as in the preceding week. Some business has been done in tin every day from prompt to early future deliveries, but the general situation continues unchanged and sales light in the aggregate.

Zinc—Prices eased off slightly in a dull market at the turn of the week. Orders have been extremely light.

Lead—Price steadiness continues and the market is featured by light sales each day to consumers.—*Daily Metal Trade.*

Coke By-Products Firm; Distillates More Active

New York—Prices of coke oven by-products are firm with output still curtailed. Demand for distillates shows improvement. Broader activity is noted in the market for benzol and toluol. Xylol is moving in better volume than solvent naphtha. Phenol prices are unchanged, but buying is spotty. Bakelite and resin makers are not taking their usual volume. Buying is confined to immediate needs. Some reordering is noted on naphthalene. Bulk of the business continues for spot lots. Prices are unchanged for flakes and balls. Demand for sulphate of ammonia is spotty and prices are easy.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots	Spot
Pure benzol	$0.21
90 per cent benzol	0.21
Toluol	0.30
Solvent naphtha	0.25
Commercial xylol	0.25
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	0.04½ to 0.05½
Naphthalene balls	0.05½ to 0.06½
Per 100 Pounds Delivered	
Sulphate of ammonia	$1.80

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
Sept. 10	10.75	11.12½	10.75	29.85	30.20	5.50	5.35	4.27½	22.90	7.87½	35.00
Sept. 11	10.87½	11.12½	10.75	30.00	30.37½	5.50	5.35	4.27½	22.90	7.87½	35.00
Sept. 12	10.87½	11.12½	10.75	29.87½	30.25	5.50	5.35	4.25	22.90	7.75	35.00
Sept. 13	10.75	11.00	10.75	29.87½	30.25	5.50	5.35	4.25	22.90	7.75	35.00
Sept. 15	10.62½	10.87½	10.50	29.80	30.25	5.50	5.35	4.25	22.90	7.75	35.00
Sept. 16	10.62½	10.75	10.37½	29.95	30.35	5.50	5.35	4.25	22.90	7.75	350.0

Europe

Steel Entente Meets in Liege—Struggle for Orders Baffles Price Control

London — (*By Cable*)—The fate of the European steel entente is to be determined in Liege, Belgium, with representatives of the German, French, Belgian and Luxemburg industries meeting to consider what steps to take in the present market situation. The entente has lost its grip on prices, and while various comptoirs were formed recently among members in the hope of prolonged control over individual products the uniform price policies which they have sought to enforce have not been observed. For the first time since the entente sought to govern prices as well as production the members have been competing sharply with one another, openly, or by resort to rebates.

German steel producers say that severe undercutting of entente prices by Polish and British steelworks, who are not associated with organization, have forced them to meet their competition. Unemployment is a serious problem in Germany, and wage reductions have failed to improve conditions. Germans are reported as saying that the entente is virtually dissolved, or at least rendered ineffective for the present.

French producers take a more hopeful view, expectation to keep it intact until world markets improve. Output by the entente during the first half of 1930 was 15,470,000 metric tons, compared with 17,520,000 tons in the comparable period of 1929. All groups reported reduced production, except France, which with 4,830,000 tons, showed an increase of 3 per cent.

No change is anticipated in the form of the organization; nor is it expected that it will be able to reestablish control immediately. Buying is held in abeyance, consumers expecting further competition to bring out lower prices. Larger concessions are reported in Belgium this week.

In England, indifference has followed the recent spurt in substantial purchases of material from the Continent. British makers have been able to maintain prices except for a reduction in steel bars rerolled from continental steel. Inquiries for automotive material are increasing. Imports of Indian and Continental pig iron are gaining, while demand for Middlesbrough and Barrow pig iron also is more active. The market for tin plate is easy, while galvanized sheets are quiet.

Production of pig iron in Great Britain in August totaled 416,700 tons, compared with 486,100 tons in July, and 682,000 tons in August, 1929. Furnaces active at the end of August numbered 104, one less than at the close of July. August output of steel ingots and castings amounted to 451,300 tons, compared with 621,400 tons in July, and 753,300 tons in August 1929.

British iron and steel imports in August totaled 195,404 tons, against 198,788 tons in July, and 255,192 tons in August last year. The August exports totaled 218,828 tons, compared with 303,444 tons in July, and 358,192 tons in August 1929.

British Makers Waiting for Prices To Stabilize

Birmingham, Eng.—The feature of the Midland market is the collapse of control in continental prices. Consequently there is fierce competition and low prices. Some buyers have seized the opportunity to snatch up bargains. Small steel bars were sold on the Birmingham exchange at £5 7s 6d ($26.122), delivered, and billets at £4 17s 6d ($23.70), though there have been offers below these figures.

English steelmakers have not responded with lower prices but are standing their ground in the hope that the headlong downward course of foreign prices may bring stabilization quicker than otherwise. Signs are emerging that the worst of the trade slump is over. Some of the Midland pig iron producers report much better specifications. The firmer position of coke is an encouraging factor. Contracts are being booked around 13s ($3.15), ovens.

The automobile industry is more active. Many firms are launching their new programs with announcements of price reductions. New models are being planned and subsidiary industries are beginning to feel the benefit of increased specifications for parts. A large mill in the Birmingham district producing weldless steel tubes has had a welcome renewal of inquiries and orders from continental automobile and cycle makers.

The Guest-Keen-Baldwin steel group has reopened its steelworks at Dowlais, South Wales, after seven weeks idleness. About 1500 men are employed, and 700 at associated coal mines.

From among tenders submitted to them in July by leading British, American and European steel manufacturers for 14,617 steel railroad tires the Union of South Africa railroads have placed approximately 9000 with British firms, including nearly 3000 tons with Steel, Peech & Tozer Ltd., Sheffield. A few orders for railroad cars have been awarded to Birmingham builders by state railroads in India and Egypt.

The London, Midland & Scottish railroad has just placed contracts for reconstructions and additions to stations in the Midlands and the North of England.

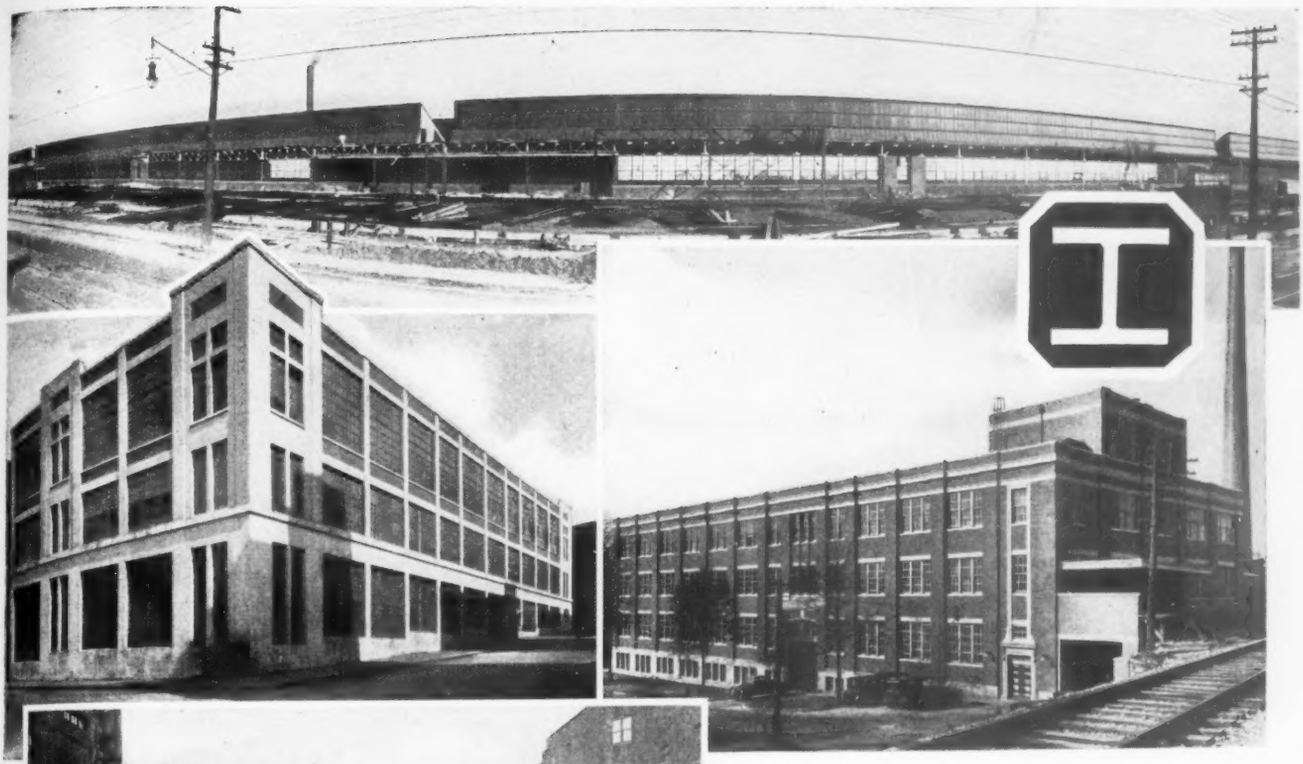
Germans Encounter Sharp Competition; Exports Shrink

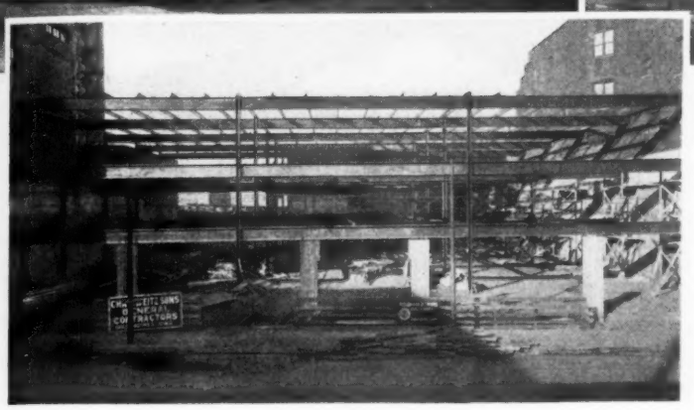
Berlin—German iron and steel exports during recent months make an unsatisfactory showing compared with those at the beginning of this year. The July exports were only two-thirds of the tonnage shipped abroad in January. For the first seven months this year exports aggregated 826,500 metric tons, against 1,093,000 tons in the corresponding period a year ago.

Exports of structural shapes dropped from 25,400 metric tons in May to 13,300 tons in July; merchant bars from 82,000 tons to 58,500 tons; hoops and bands from 6600 tons to 5500 tons; semifinished steel from 41,200 tons to 23,500 tons, and pig iron from 20,700 tons to 14,800 tons.

The demand from foreign markets is restricted and there is keen competition from Belgian, Luxemburg and French works, accompanied by severe price cutting. While the German makers are asking £4 10s ($21.80) for merchant bars, some Belgian offers have been reported at £4 5s ($20.65). For plates the Germans quote £5 10s ($26.70), against the Belgian price of £5 5s ($25.50). Similar disparities are observed for structural steel. In the thin sheet market competition is raging owing to the desire of some Belgian works to obtain orders. Prices of wire products have been further shaded, with the result that export business now is not profitable. Annealed wire is quoted at £6 12s ($32); barbed wire at £12 10s ($60.80) and wire nails in bulk at £6 2s ($29.50).

The domestic market continues stagnant. Railroads and the postal and telegraph department are ex-





The parallel flanges of Carnegie Beams add unique advantages and economies in industrial building construction

CARNEGIE BEAM SECTIONS are particularly adaptable to the construction of industrial buildings. Pictured above are several types of the many industrial buildings throughout the country in which these beams have been used with great economy and satisfaction.

A unique feature of Carnegie Beams is their parallel flanges. The elimination of internal flange slope provides eight non-sloping surfaces for connections instead of four, simplifying very markedly the great variety of connections usually required, such as special columns for cranes, crane girders, rail clamps, monorail tracks, brackets of all descriptions, pipe and conduit hangers, sash, partitions, machine bases and many others.

For long, heavily loaded spans there are Carnegie Beams up to 36 inches deep, in a great variety of weights and flange widths. These reduce obstructive columns to a minimum. For long, unbraced column lengths there are included in the series a wide selection of sections designed to give a maximum least-radius-of-gyration, combined with minimum weight.

Neatness of construction and simplicity of detail characterize jobs fabricated of Carnegie Beams. These sections merit the investigation of those interested in efficient and economical construction of industrial buildings.

CARNEGIE STEEL COMPANY ✣ PITTSBURGH, PA.

Subsidiary of United States Steel Corporation

53

CARNEGIE BEAMS

pected soon to start a program requiring considerable steel. It is feared the usual seasonal demand from the farmers will not be so large as in the past.

The United Steelworks Corp. has made a further application for permission to dismiss a number of workers, and the Klockner works and the Upper Silesian Iron and Steelworks have taken a similar step. Among the few favorable features is the receipt of an order for six tank vessels valued at 30,000,000 marks ($7,150,000) placed by the Standard Oil Co.

The general meeting of the Maximilian Hutte was held recently and it was decided to maintain the dividend at 7 per cent. Its report states orders from the national railroads have been about 50 per cent normal.

Comptoirs' Uniform Price Policy Is Disregarded

Paris—Holidays have retarded demand for iron and steel with a resultant decline of prices. This has neutralized the influence exerted by the recent formation of comptoirs. Consumers now are aware of the fact all the steelworks are not following a uniform price policy, and are holding back their orders for this reason.

Export trade is practically at a standstill. The volume of inquiries is small. Some business has been done in semifinished steel, but the new export sales organization for Great Britain appears to be somewhat unwieldy, and does not tend to facilitate business. The volume of domestic orders for semifinished also is small, owing to the disparity of prices when compared with those of rolled steel. There has been no change in prices fixed by the comptoir for beams and structural steel.

The merchant bar market is upset. While the general understanding is that bars should not be sold at less than 620 francs ($24.40) per metric ton several works in the North have made sales at 40 to 50 francs ($1.60 to $2.00) a ton below this level. In some instances producers have offered to pay customers a rebate if the fixed prices are brought down at time of delivery.

In the eastern districts merchant bars range from 590 francs to 600 francs ($23.15 to $24.55). Concrete bars have been offered at 570 to 580 francs ($22.45 to $22.85), eastern works. Inquiries for plates and sheets have diminished and any business transacted is done at the comptoir prices. Imports of Belgian sheets have been reported in the north of France. For hoops and bands the Usines de la Providence quote 720 francs ($28.45), at Rehon works.

Contracts are being negotiated for reconstruction of French borders, and considerable tonnages are involved. Tenders are to be submitted for reinforced concrete bars, structural steel, barbed wire posts, and narrow-gage railroad tracks. This is one of the most important sources of work for the French iron and steel industry.

Strikes in the north of France, following the application of the new workmen's compensation act are expected to end shortly owing to mediation by the ministry of work.

Soviet Buying Rolled Products in Poland

The Polish iron and steel industry was saved from a sharp contraction in activity during the first half of 1930 by a considerable increase in its export business with Soviet Russia, according to trade reports to the department of commerce. A contract negotiated in the latter part of 1929 called for delivery of approximately 150,000 metric tons of rolled products to Russia during the first six months of 1930. Normally the Polish industry looks to the export trade to take not more than 20 per cent of its rolling mill output, while during this period 40 per cent of its output was shipped abroad. Approximately 85 per cent of the exports went to Russia. It is reported from authoritative sources that the Soviet commercial mission in Warsaw has placed orders with the Polish industry for an additional 250,000 tons of rolled products.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, September 15	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable		£ s d		£ s d		£ s d		£ s d
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$15.43	3 3 6*	$12.88	2 13 0	$12.88	2 13 0	$13.37	2 15 0
Basic-bessemer	15.92	3 5 6	12.88	2 13 0	12.88	2 13 0	13.37	2 15 0
Hematite, Phosphorus 0.02-0.05	17.25	3 11 0	24.76	630*	.....	.....	17.74	3 13 0
SEMIFINISHED STEEL								
Billets	$27.95	5 15 0	$17.74	3 13 0	$17.74	3 13 0	$18.23	3 15 0
Wire rods	41.31	8 10 0	30.38	6 5 0	30.38	6 5 0	31.60	6 10 0
FINISHED STEEL								
Standard rails	$40.10	8 5 0	$31.60	6 10 0	$31.60	6 10 0	$32.08	6 12 0
Merchant bars	1.68c	7 15 0	.94c	4 5 0	.94c	4 5 0	.99c	4 10 0
Structural shapes	1.68c	7 15 0	.89c	4 1 0	.89c	4 1 0	.94c	4 5 0
Plates, ship, bridge and tank	1.79c	8 5 0	1.11c	5 1 0	1.11c	5 1 0	1.16c	5 5 0
Sheets, black, 24 gage	2.17c	10 0 0	1.93c	8 15 0	1.93c	8 15 0	1.98c	9 0 0
Sheets, galvanized, 24 gage, corrugated	2.47c	11 7 6	2.46c	11 3 9	2.46c	11 3 9	2.42c	11 0 0
Bands and strips	2.17c	10 0 0	1.10c	5 0 0	1.10c	5 0 0	1.29c	5 17 0
Plain wire, base	2.06c	9 10 0	1.46c	6 12 6	1.46c	6 12 6	1.43c	6 10 0
Galvanized wire, base	3.04c	14 0 0	1.65c	7 10 0	1.65c	7 10 0	1.67c	7 12 0
Wire nails, base	2.39c	11 0 0	1.38c	6 5 0	1.38c	6 5 0	1.49c	6 15 0
Tin plate, base box 108 pounds	$ 4.38	0 18 0	.....	.....	.....	.....	$ 8.75	1 16 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$15.43	3 3 6	$19.26	490(2)	$16.74	600	$19.78	83
Basic pig iron	15.92	3 5 6	20.63	525(1)	13.39	480	21.09	88.50
Furnace coke	3.28	0 13 6	6.60	168	5.30	190	5.12	21.50
Billets	28.55	5 17 6	22.20	565	20.93	750	28.00	117.50
Standard rails	1.79c	8 5 0	1.46c	810	1.62c	1,245	1.47c	136
Merchant bars	1.74c	8 0 0	1.18c	655	1.02c	785	1.48c	137
Shapes	1.84c	8 10 0	1.26c	700	1.18c	910	1.45c	134
Plates, ship, bridge and tank	1.95c	9 0 0‡	1.46c	810	1.25c	960	1.65c	153
Sheets, black, 24 gage	2.28c	10 10 0	2.72c	1,510	2.47c	1,900	1.36c	126
Sheets, galvanized 24 gage, corrugated	2.58c	11 17 6	3.52c	1,955	2.86c	2,200	3.67c	340
Plain wire	2.06c	9 10 0	2.03c	1,125	2.15c	1,650	2.34c	217
Bands and Strips	2.17c	10 0 0	1.26c	700	1.37c	1,050	1.72c	159

*Middlesbrough; †Basic ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 13s 0d ($3.16) f. o. b. Ferromanganese £19 6s 0d ($93.80) delivered Atlantic seaboard, duty-paid. German ferromanganese £12 0s 0d ($58.32) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

THAT the predicted improvement in business following Labor day has not materialized to any extent is clearly evident. Disappointment over this is inclined to becloud the fact that August gains are being held. An explanation of numerous inquiries without proportionate resulting sales is that 1931 budgets are now being prepared. This is particularly true in the case of railroads. A belated effect of the depression is the sharp slump which has just occurred in the sewing machine business, which up to recently has been one of the bright spots in the metal working picture. Steel mill buying has begun with Jones & Laughlin Steel Corp. prominent.

New York—Improvement in machine tool buying thus far this month has been spotty and unevenly divided among eastern dealers and builders. While in general the volume is slightly heavier, the demand has not increased to the extent anticipated. There are exceptions, however, and some report a good gain in orders. Inquiry is more active, covering a broad field. While there are no large new lists before the market, the aggregate pending volume for one or two tools is fair, or at least encouraging after the long period of dullness. The bulk of the American Locomotive list is still open. Shipyards are active and taking a few tools. Sun Shipbuilding Co. has bought a few machines, including a boring mill. Government yards are also inquirying for a few tools. Railroads are buying sparingly as are several of the largest buyers. Sales are generally limited to one or two units at a time. Delivery is prompt. There are no price changes of importance, but open bids for government equipment bring out some varied quotations.

While inquiry for grinding machinery is slightly more active, orders have not materially increased. Export business, however, holds up well. One builder reports fully 75 per cent of the volume during the last few weeks has been for export account. This is not entirely due to Russian buying, orders being taken from other European countries. Ball bearing plants in southern New England are operating generally on erratic schedules. Some which have been down after a recent flurry of business are gradually working back, although still operating on a sharply reduced schedule. Singer Mfg. Co. (sewing machines), Bridgeport, Conn., which has held up well during the summer, is now feeling the full effect of the slump for the first time, and has curtailed operations sharply.

The City of New York purchasing department is opening bids on a shaper. George B. Marx Inc., Brooklyn, is in the market for an eight-foot open throat squaring shear, taking up to 3/16-inch stock and a 12-foot bending brake taking stock up to 3/16-inch.

Worcester, Mass.—Morgan Construction Co. will install a large merchant steel mill for Jones & Laughlin Steel Corp., as an addition to its plant in Pittsburgh. This will mean putting the Morgan plant here on double schedule, the first important extension of manufacturing operations in Worcester in many months. Local inquiry is showing some increase and there continues to be an abundance of inquiry on Russian business. Textile machinery makers are placing orders and, evidence of increased activity is coming from many other directions.

It is reported that a leading automotive manufacturer in Detroit has an inquiry out for grinding machinery for the manufacture of parts which have been farmed out here-tofore.

Pittsburgh—Improved interest in machine tool buying provides sellers with hope for better activity during the fourth quarter. Volumes of recent orders shows little if any increase over preceding weeks, but inquiries have picked up moderately since that time. Some railroad inquiry is appearing, this being largely for the purpose of determining prices for inclusion in 1931 budgets. Few purchases by the carriers are in prospect for the near future. Westinghouse Electric & Mfg. Co. is expected to issue a new list shortly. Jones & Laughlin Steel Corp. has a considerable list of machinery and tools pending. This company is understood to have placed a bar mill for its Aliquippa works as a part of the improvement program now under way.

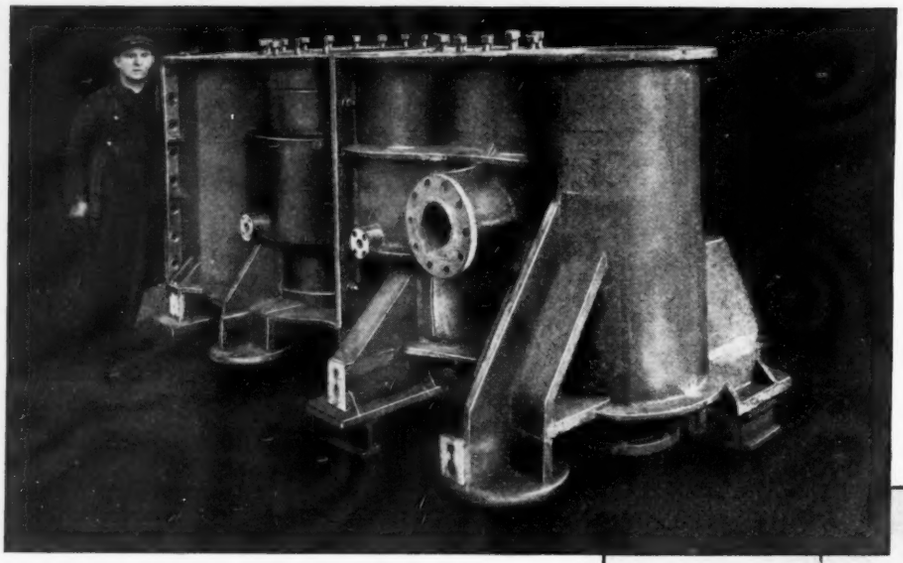
Cleveland—Requests for estimates continue to come in to local machine tool builders and dealers. Actual orders remain elusive, however, and in general it may be said that the concerns which happen to have closed several deals involving individual units are the ones which are inclined to see improvement. Such sales of individual units in most cases have involved an amount of sales effort out of proportion to the profits accruing.

Disconcerting reports have come from Detroit as to secondary shutdowns of automotive plants, but the more optimistic machine tool men interpret these rumors as signs of retooling for new models, which may involve sales of machinery and tools. The failure of the after Labor day revival to materialize up to the middle of September has caused much loss of faith in that prediction, and lends color to the more conservative view that quiet business will persist for another two months.

The renewed activity along sales promotion lines, which was noted last week, continues, and progressive sales managers are planning to pay close attention to the National Metal exposition in Chicago during the week of Sept. 22. This event will not be a machine tool show, but it will in its other phases, give machine tool men a chance to analyze many products as to the application of improved machine tools in their manufacture.

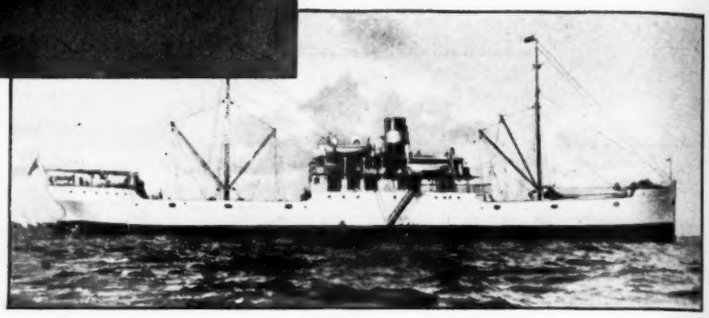
Chicago—Orders for repair work now being received indicate growing interest in the machine tool market, and a tendency on the part of users of production and shop equipment to survey needs. Sales generally have improved, but machine tool inquiries remain spotty. One or two dealers report a continuation of July-August business, which approximated the 1928 volume, although still much below last year. Grigsby-Grunow Co., which, through its subsidiary, Majestic Household Utilities Corp., purchased a large amount of equipment this year, now is ordering production tools for its radio-tube making department. About a dozen items are to be included. A local steelworks still defers closing on about 15 shop tools that have been on inquiry for several weeks. A boat and engine manufacturer has completed a fair sized order, and an X-ray machine manufacturer recently closed on some drills. No outstanding inquiries have developed, but most dealers feel that the September total will show an upward tendency.

The Dayton, O., chapter of the American Society for Steel Treating recently elected the following officers for 1930-31: Chairman, L. H. Grenell, Frigidaire Corp.; vice chairman, F. L. Meacham, Frigidaire Corp; secretary, Fred M. Reiter, Dayton Power & Light Co.; and treasurer, W. M. Due Crawford, MacGregor & Canby Co.



Left: Marine engine cylinders produced from 2% Nickel Cast Iron by MONTREAL FOUNDRY, Ltd., Montreal, P. Q., Can.

Below: S. S. Collector in coast service on Jamaica run for Canadian National Steamship Lines.



Scientifically correct

...NICKEL CAST IRON cylinders *help eliminate costly repairs*

DRYDOCKING a ship is so costly an operation that shipowners are protecting themselves against such emergencies by specifying the best materials of construction available.

When the S. S. *Collector* was overhauled for West Indian service by Canadian Vickers, Nickel Cast Iron was specified by this company for her new high and intermediate pressure cylinders. These intricate castings, weighing respectively 6,248 and 5,100 lbs., and having sections ranging from ¾ to 1¼", were produced from a suitable base mixture containing 2% Nickel, by the Montreal Foundry, Ltd., Montreal.

These Nickel Iron cylinders, uniformly dense throughout, passed the required 250-lb. hydraulic pressure test and machined well in all sections. The use of Nickel facilitated foundry and finishing operations and will add years to the service life of these cylinders.

Nickel
FOR SCIENTIFICALLY CORRECT CAST IRON

INCO NICKEL

Our casting specialists will gladly discuss your casting problems with you.

Visit our Booth—10D at the 12th National Metal Exposition, Chicago—September 22-26

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

BRIDGEPORT, CONN.—Moore Special Tool Co., 358 John street, is asking bids for construction of a 1-story plant addition.

TORRINGTON, CONN.—Torrington Castings Co., whose plant recently was noted as having been damaged by fire, has awarded general contract for the rebuilding of the plant. Cost is estimated at $25,000, with equipment. (Noted Aug. 14.)

BOSTON—New Method Die & Cut-Out Co., 30 Cross street, is reported to be in the market for a pyrometer, hardening furnace, blower and a roll forming machine for curving 16-gage flat metal. Length, 30 inches.

BOSTON—Condit Electric Mfg. Co., 344 Hyde Park avenue, is having plans prepared for plant additions and alterations. Cost is estimated at about $50,000. Plans are private.

CHICOPEE, MASS.—Bay State Refining Co. Inc. has been incorporated with 5000 no par shares by Reginald Hazeltine, to refine metals and to operate a foundry and machine shop.

LAWRENCE, MASS.—U. S. Cast Magnet Steel Corp., recently incorporated, will be affiliated with Lawrence Factories Inc. and will manufacture cast cobalt steel. Initial operations will be undertaken with 10,000 square feet of floor space. Isodor Goldberg, president of Pilot Radio & Tube Corp., heads the U. S. Cast Magnet Steel Corp. A steel foundry will be built immediately.

WORCESTER, MASS.—Plant at 80 Webster avenue of Wickwire Spencer Steel Corp., 41 East Forty-second street, New York, recently was damaged by fire. Estimated loss, $50,000.

New York

BROOKLYN—R. H. Macy & Co., Thirty-fourth street and Broadway, New York, will build a 153 x 256-foot unit to be used as a shop, garage and storage building, at Glenwood road and Schenectady avenue, here. Cost is estimated at $200,000. R. D. Kohn, 56 West Forty-fifth street, New York, is architect.

BROOKLYN—Kason Hardware Corp., manufacturer of hardware for store fixtures, refrigerators and commercial furniture, 61 Navy street, advises through A. Lubart that a recent fire damaged machines in the company's plating and polishing department, and some merchandise. Loss, nearly $4000. Company is reconditioning its plant and plans to install a new blower system and new machines which will take care of growing business. (Noted Sept. 11.)

BUFFALO—Queen City Foundry Co., 391 Norfolk avenue, recently suffered loss estimated at $150,000 when four of its seven plant units were virtually destroyed by fire.

NEW YORK—Paragon Cab Mfg. Corp. has been incorporated with $10,000 capital by M. A. Lichtman, 152 West Forty-second street.

NEW YORK—Efficiency Steel Units has been incorporated with $100,000 capital by M. M. Booxbaum, 1501 Broadway, to deal in steel products.

NEW YORK—York Sectional Boiler Co. has been incorporated with 100 common shares by J. E. Gilbert, 350 Madison avenue.

NEW YORK—Sealcones has been incorporated with $10,000 capital by Smyth & Tuttle, 61 Wall street, to deal in machinery for sealing milk containers.

NEW YORK—Electrolysis Corp. of America has been incorporated with $10,000 capital by Leo Wolfson, 299 Broadway, to deal in electrolysis equipment.

Pennsylvania

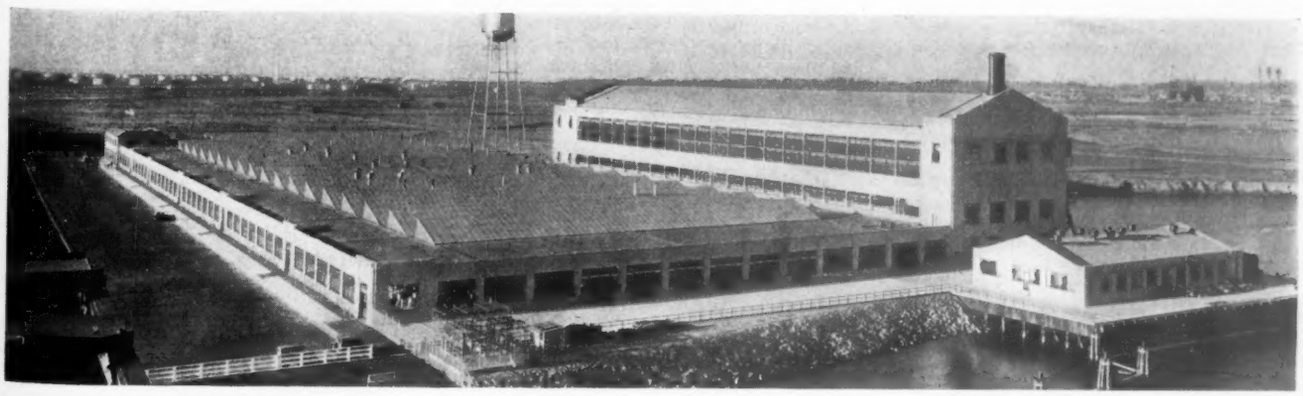
BELLEFONTE—Sutton Engineering Co., Park building, Pittsburgh, advises through J. Blair Sutton, president, that the company is making an addition to its works here. A 50-ton crane will be installed.

BLOOMSBURG — American Car & Foundry Co., 30 Church street, New York, is reported to be planning the reconstruction of its mine car plant here, recently noted as having been damaged by fire, at a loss of $500,000. Units would include machine shop, blacksmith, pattern and construction shops, electrical shop and storehouse. (Noted Sept. 4.)

HOMESTEAD—Mesta Machine Co., manufacturer of rolling mill equipment, has started construction of a new unit, 60 x 300 feet, for its erecting department. New unit will allow more room in the company's machine shop, in which lathes and machine tools will be placed.

LEECHBURG—West Leechburg Steel Co., Farmers' National Bank building, Pittsburgh, is constructing a plant ad-

Ford Opens Assembly Plant on West Coast



Ford Motor Co., Fordson, Mich., has completed construction of its new assembly plant at Los Angeles-Long Beach harbor. Ira S. Groves, former manager of the company's branch at San Francisco, has assumed his duties as manager of the new assembly unit

dition here for the manufacture of corrosion-resistant metal.

OIL CITY—Independent Oil Refining Co., care of S. Erickson, has awarded contract for a shop building of one and two stories, and a laboratory, to be built on Seneca street extension. Approximate cost, $40,000.

PHILADELPHIA—Peerless Steel Equipment Co. has been incorporated with $150,000 capital by Conrad Bergmann, 7339 Dungan road, to manufacture and deal in metals, metal products, devices, supplies and accessories.

PHILADELPHIA—Aviation Corp. of America, 100 East Forty-second street, New York, will start work soon on a new plant of several 1-story units, for the manufacture of seaplanes and flying boats. Cost, with machinery, $200,000. (Noted July 17.)

PHILADELPHIA — Philadelphia Electric Co., 1000 Chestnut street, will build a power house on Nineteenth street, north of Wagner avenue. Contract has been let to United Engineers & Constructors Inc., 112 North Broad street. Cost is estimated at about $30,000.

PITTSBURGH—Jones & Laughlin Steel Corp., Ross street, has a building permit for a mill unit to be erected at McClurg and Thirty-fourth streets. Cost is estimated at $42,000.

UNIONTOWN—Richmond Radiator Co., 1480 Broadway, New York, will build a 32 x 56-foot gas boiler plant, 50 x 160-foot warehouse, 16 x 48-foot blacksmith shop, and a 1-story, 22 x 48-foot machine shop.

WARREN—Warren Airways, F. J. McCoy manager, plans to build a hangar unit at its private airport. Structure will be 80 x 100 feet.

YORK—Split Coach Motor Corp., manufacturer of tourist trailers, has leased additional space for expansion in the plant of York Tack & Nail Works, increasing plant floor space 20,000 square feet. Company expects to expand further in the future.

New Jersey

BURLINGTON—United States Pipe & Foundry Co. is completing a 3-story laboratory for research in the production of cast iron pipe.

CARTERET—Foster-Wheeler Corp. is erecting a 1-story plant addition, 75 x 300 feet, for making metal and wood patterns. Cost is estimated at $50,000, with equipment.

ELIZABETH—Karmak Inc. has been incorporated with 5000 common shares by Murray D. Welch, 15 Broadway, New York, to stamp, smelt and refine ores.

FLEMINGTON—Foran Foundry & Mfg. Co. is building an addition to its machine shop, 45 x 70 feet.

JERSEY CITY—City will take bids soon for an addition to the power plant on Baldwin street. Cost is estimated at over $100,000.

NEWARK—Avwell Corp. has been incorporated with 1000 common shares by Haines & Chanalis, 9 Clinton street, to manufacture aircraft and automobiles.

NEWARK—Herald Mfg. & Trading Corp. has been incorporated with 1000 common shares by Ralph H. Jacobson, 24 Commerce street, to deal in machinery.

NEWARK—Rotator Corp. has been incorporated with 1000 no par shares by Warren E. Willis, 15 Park row, New York, to manufacture razor sharpeners and metal specialties.

Ohio

ASHLAND—Dr. George Riebel has acquired a site of 40 acres for an airport here. Construction of a hangar is planned.

CINCINNATI—University of Cincinnati, Arthur R. Morgan president of the board of trustees, has building plans which include a central shop and warehouse, to be built at a cost of about $100,000. Plans for this unit probably will not mature until next year.

CLEVELAND—Dobeckmun Co., 1311 West Eightieth street, manufacturer of cellophane products and machinery for their manufacture, recently purchased one acre at Monroe avenue and Fulton road southwest, for expansion. Contract has been awarded to the William Dunbar Co., 8201 Cedar street, for a 1-story, 100 x 262-foot plant unit, to be built at a cost of $75,000. George S. Rider Co., Marshall building, is architect.

KENT—Board of education, W. A. Walls superintendent, plans an industrial shop to house the industrial arts section of the city schools.

LIMA—Superior Motor Coach Body Co. plans to spend between $8000 and $10,000 for power plant equipment at its plant on Kibby street, including installation of high pressure boilers. Remodeling of the power plant is to be completed about Oct. 1.

YOUNGSTOWN—Martin Motor Co. Inc., Garden City, N. Y., truck manufacturer, has resumed investigations of plant sites here, through H. S. Warwick, chairman of the allied industries committee of the chamber of commerce. Plant with 50,000 square feet of floor space is contemplated. (Noted June 12.)

Indiana

HUNTINGTON—Orton Crane & Shovel Co., 608 South Dearborn street, Chicago, plans an expansion program at its plant here. New units will be built on a site adjoining the company's present buildings.

Michigan

DETROIT — Detroit Yacht Harbor, 1010 Lafayette building, will build a yacht harbor on the Detroit river. Machine shop is included. Estimated cost, $500,000. Plans are being prepared.

DETROIT—Liberty Starter Co., 241 Vinewood street, is building a plant addition. Pollmar & Ropes, 2539 Woodward avenue, are architects.

DETROIT—Diamond Power Specialty Corp., 10340 Oakland avenue, has awarded contract to W. J. C. Kaufman Co., 10610 Shoemaker street, for a plant addition at Oakland and Caniff avenues. Company manufactures soot blowers.

DETROIT—Factory Equipment & Engineering Co., 2842 West Grand boulevard, has been incorporated with $10,000 capital by Roth M. Leddick, 11359 Nardin avenue, to operate as contracting and consulting engineers to design and build washing machines, pickling machines and other products.

DETROIT—National Metal Products Inc., 7138 Fenkell avenue, has been incorporated with 10,000 no par shares by Albert S. Polk, 3045 Cortland avenue, to manufacture and sell lighting fixtures and specialties.

DETROIT—Great Lakes Tool & Die Co. Inc. has been incorporated with $10,000 capital by Joseph Krause, 1618 Eleven Mile road, to engage in general tool and die work and in special machine work.

GRAND RAPIDS—Quality Tool Co., 503 Grandville avenue southwest, has been incorporated with 10,000 no par shares by Robert Bloore and Clifford Antrim, to manufacture and deal in tools and dies.

HOUGHTON—Carroll Steel Foundry Co., recently noted as planning plant construction, has been reorganized with $250,000 capital. Several plant units will be built and new equipment will be purchased. Company will deal in steel, iron, brass, aluminum and alloy steel. (Noted Sept. 11.)

JACKSON—Chamber of commerce is reported to be negotiating with representatives of a company which would manufacture an automobile headlight, invented by J. B. Darlington, Bellefonte, Pa. Proposed industry would employ about 100.

LANSING—Jarvis Flint Erection Co., 901 River street, has been incorporated with 10,000 no par shares by Elmer R. Dail, to erect structural steel, manufacture and erect machinery.

SAGINAW—Saginaw Steering Gear Division of General Motors Corp. will manufacture steering gears for Chevrolet Motor Co., and plans expansion to plant facilities to provide increased production. Estimated cost, $500,000.

Illinois

ALTON—Plant of Schuessler Foundry & Machine Co., at Federal, Ill., near here, recently was damaged by fire. Loss is estimated at about $2500.

BELLEVILLE — Plant of Oakland Foundry Co. recently was swept by a fire which caused $500,000 damage. Pattern shop, molding room, mounting room, machine shop, engine room, office and warehouse were razed. Plant was insured.

CHICAGO—Spalding Machinery Co., 205 W. Wacker drive, has been incorporated with $20,000 capital by Lucien I. Yeomans Inc., same address, to manufacture and deal in merchandise, machinery and machine tools.

CHICAGO—American Screen & Weather Strip Co., 3101 West Harrison street, has been incorporated with $5000 capital by Gilbert G.

Wolfe, suite 1346, First National Bank building.

CHICAGO—Fire at 425 West Superior street recently damaged the plants of United States Register Co. and Fairbank Electric Co., manufacturer of radios.

CHICAGO—Majestic Clock Corp. has been incorporated with $20,000 capital by Golden & Golden, 100 West Monroe street, to manufacture and deal in electric clocks and electric clock motors.

CHICAGO—Daemicke Motors Inc., 7616 South Halstead street, has been incorporated with $10,000 capital by Gann, Secord & Stead, 120 South LaSalle street, to manufacture and deal in autos, trucks and auto cars.

CHICAGO—American Can Co., 104 South Michigan avenue, has awarded contracts for the construction of a warehouse addition and a 1-story, 58 x 94-foot boiler room, at 5947 South Western avenue.

CHICAGO—Naxon Electric Clock Co., room 700, 10 South LaSalle street, has been incorporated with $20,000 and 10,000 no par shares by Altheimer & Mayer, 10 South LaSalle street.

CHICAGO—Safety First Needle Guard Co., room 1903, 33 North LaSalle street, has been incorporated with 1000 no par shares by Louis N. Blumenthal, 1908 Fireman's National Bank building, to manufacture tools, fixtures and machinery.

CHICAGO—Gumpper Engineering Corp., 2334 Geneva terrace, has been incorporated with $10,000 capital by Marcus D. Henshel, 100 West Monroe street, to manufacture and deal in machinery, specialties and appliances.

CHICAGO—Jorr Engineering Co., West Seventy-fourth street, has been incorporated with 40,000 no par shares by Poppenhusen, Johnson, Thompson & Cole, 11 South LaSalle street, to manufacture and deal in gasoline tanks, other engines, machines and parts.

CHICAGO—Ingels Elbow Machine Corp., 2634 Fullerton avenue, has been incorporated with 50,000 no par shares by Cavender, Milchrist & Kaiser, 160 North LaSalle street, to manufacture and deal in machinery, tools and hardware.

CHICAGO—Auto Safety Appliance Co., Room 425, 800 North Clark street, has been incorporated with $10,000 capital by John H. Hill, 130 Metropolitan building, to manufacture and sell automobile accessories.

CHICAGO—Keith Boat & Engine Co., 2420 South Halstead street, has been incorporated with 500 no par shares by Cutting, Moore & Sidley, 11 South LaSalle street, to deal in vessels, ships, boats and launches.

CHICAGO—Western Skylight & Roofing Co., 4140 West Harrison street, has been incorporated with $15,000 capital by I. M. Leavitt, 130 North Wells street, to manufacture and deal in architectural and ornamental sheet metal, skylights, ceilings and windows.

CHICAGO—Albright-Nell Co., 5315 South Western avenue, will build a 1-story addition, 140 x 200 feet, to its plant for the manufacture of machinery for meat packing houses. Cost is estimated at $55,000.

COLLINSVILLE — Spies Hydraulic Motor Co., 723 Maple street, has been incorporated with $50,000 capital by Keefe, Bandy & Listeman, Spivey building, East St. Louis, Ill., to manufacture, build and equip motors or automobiles, trucks and airplanes.

MURPHRYSBORO—Mitchell Electric Service Inc. has been incorporated with $5000 capital by Isaac K. Levy, to manufacture and deal in electrical goods.

Missouri

KANSAS CITY—Southwest Ornamental Iron Works, whose plant recently was damaged by fire, has awarded contract for a 1-story plant to be rebuilt from the damaged plant.

ST. LOUIS—St. Louis Screw & Bolt Co., E. J. Miller president, 6900 North Broadway, is reported to be planning a new open-hearth steel furnace of 40 tons capacity. Additional equipment will be needed.

ST. LOUIS—United States Engineers office, 428 Custom House, will soon receive bids for one 1000-kilowatt and one 100-kilowatt direct-current generator sets, and one 1000-horsepower motor.

Oklahoma

OKLAHOMA CITY—Oklahoma City Machine Works has been incorporated with $10,000 capital by George W. Cole, to do general machine work.

SAND SPRINGS—Steel Castings Inc. has been incorporated with $30,000 capital to manufacture steel castings by the converter method. F. F. Shoemaker, president, and Larry Hinz, general manager, are associated with Tulsa Stove & Foundry Co. The latter will build a plant addition for the Steel Castings company, and production will start in about 90 days. Converter has been purchased. Core ovens, annealing furnace and other equipment will be needed.

TULSA—Taylor Tractor & Equipment Co., Box 91, will build a warehouse, 80 x 150 feet, on Sand Springs road. A repair shop, 25 x 80 feet, for servicing tractors, will be included.

Texas

AMARILLO—Air-O-Matic Mfg. Co., 840 North Main street, Wichita, Kans., will build a plant here for the manufacture of pumps and pumping equipment.

GOOSE CREEK—Chamber of commerce, L. L. Huie president, will develop a 200-acre airport recently acquired near here.

Wisconsin

MILWAUKEE—A. O. Smith Corp., Twenty-seventh street and Keefe avenue, has awarded contracts for the construction of an extension of its automatic welded pipe shop, to cost about $350,000. Unit, to be known as building No. 108, will be built at Thirty-fifth street and Keefe avenue. It will be 225 x 245 feet.

Minnesota

WINONA—Winona Machine & Foundry Co. plans to rebuild a portion of its plant, recently damaged by fire. Winona Boiler Co. is reported to be considering rebuilding of its works, also damaged by fire, on an adjoining site.

South Dakota

MITCHELL — General Manganese Co., recently organized, plans to build a new reduction mill, to include power equipment. Work will get under way at once. Cost is estimated at about $200,000.

Kansas

HOLTON—City is having plans prepared for an addition to its power plant. Black & Veatch, 700 Mutual building, Kansas City, Mo., are engineers. Cost is estimated at $65,000.

Nebraska

OMAHA—Metropolitan utilities district, Eighteenth and Harney streets, plans to build a pumping station at Bedford avenue and Fontenelle street, and purchase equipment. C. D. Robinson is engineer for the district.

Colorado

BRUSH—American Legion proposes to build a hangar unit at the airport here.

Wyoming

RAWLINS—Mills, boiler house and machinery at Seminoe Mountains Gold Mine, 45 miles northwest of here, recently were burned. Loss is estimated at about $75,000.

Arizona

TUCSON—Whitman Metal Reduction Corp., H. L. Whitman president, is a new firm here, established in a plant leased from the El Paso & Southern railroad. Company will manufacture a product to be known as Cop-O-Lead, or lead suspended in copper. Metal will be furnished in various ratios for recasting.

Southern States

BIRMINGHAM, ALA.—Chamber of commerce is reported to be assisting a manufacturer of pole line hardware to locate a new plant. A Milwaukee concern is interested.

BIRMINGHAM, ALA.—W. M. Smith & Co., 4601 First avenue north, is re-

ported to be inquiring for machine shop lathes of any length, with 10 to 30-inch chuck.

WASHINGTON—Bureau of yards and docks, navy department, is taking bids on specification 6186 for three turbogenerator units to be installed at naval air stations at Pensacola, Fla., Great Lakes, Ill., and Portsmouth, N. H.

MIAMI, FLA.—City has acquired 157 acres for airport facilities for the naval air reserve unit, and 5 acres for buildings, including hangar units.

TAMPA, FLA.—Tampa Shipbuilding & Engineering Co. is reported to be planning an expansion program which will cost about $200,000.

TAMPA, FLA.—Ideal Mfg. Corp., recently organized, has established temporary headquarters at 202 Magnolia avenue. Company will manufacture portable radio aerials. James A. Hoyt is general manager.

ROCKPORT, KY.—Tipple, power plant and equipment of Emerald Coal Co. recently were damaged by fire. Loss is estimated at $150,000 to $200,000.

MONROE, LA.—Ouachita parish police jury is receiving bids for the construction of a hangar unit, 110 x 130 feet, at the airport here. Sam Collins is parish engineer.

LINDEN, TENN.—Plant of Tennessee Electric Power Co. recently was damaged by fire to the extent of $30,000.

MEMPHIS, TENN.—Memphis Power & Light Co., W. D. Kyser president, will build additional power plant and extend power facilities in an industrial city now being surveyed near here.

RICHMOND, VA.—James W. Kendler & Sons Inc., 713 West Main street, whose incorporation recently was noted, plans to operate a plant here for the production of sheet metal products. (Noted Aug. 14.)

Pacific Coast

BERKELEY, CALIF.—Board of regents, University of California, will receive bids until Oct. 17 for mechanical equipment for the university's central heating plant.

LONG BEACH, CALIF.—Taylor Truckaway Service Ltd. will establish a depot on West Anaheim street, near the Long Beach Ford assembly plant. A fleet of 50 trailers, thirty automobiles and six service cars will be handled through a machine shop to be established.

OAKLAND, CALIF.—Herrick Iron Works, Eighteenth and Campbell streets, has acquired a plant site for future expansion. Building program is expected to be started next year.

OAKLAND, CALIF.—Atlas Trailer Mfg. Co., of Stockton and Fresno, Calif., is locating at Fifth and Adeline streets here, and is altering a plant which will provide 20,000 square feet of floor space. G. E. Eichelberger is manager. Equipment and machinery will be installed.

SALINAS, CALIF.—Inter-Continental Rubber Co. has acquired land near here for a new plant, to include a machine shop and power station.

SEATTLE—Board of public works will build a power substation on Ninth avenue northeast. Cost, with equipment, is estimated at $60,000.

SPOKANE—City council is asking bids for one 500-horsepower pumping unit and one 2700-gallon pump.

WALLA WALLA, WASH.—Pacific Power & Light Co., Portland, Oreg., plans construction of a $40,000 substation here.

Dominion of Canada

COPPER CLIFF, ONT.—International Nickel Co. of Canada Ltd., 80 King street west, Toronto, Ont., has awarded contract to Fraser-Brace Engineering Co. Ltd., 107 Craig street west, Montreal, Que., for alterations and additions to its plant here. Company proposes to move a part of its operations from Port Colborne, Ont., to the local plant. Estimated cost of the addition, $70,000.

OTTAWA, ONT.—Trucks & Tractors of Ottawa Ltd. has been incorporated with $40,000 capital by John E. Griffith and Gordon McDougall to manufacture and deal in automobiles, trucks, tractors and farm machinery.

TORONTO, ONT.—Latcham Airways Ltd. has been incorporated with 2000 no par shares by Wilfrid W. Parry, Kent building, to manufacture and deal in aeroplanes, balloons, airships and flying machines.

New Trade Publications

ELECTRICAL TOOLS—A new 64-page catalog is being distributed by the Standard Electric Tool Co., Cincinnati, O., featuring a complete line of electric drills, grinders, buffers and polishers.

HANDLING EQUIPMENT—Specifications and operating features of a new line of multiple lift trucks are set forth in bulletin No. 123 just issued by the Barrett-Cravens Co., Chicago. Color plates make clear details of the all-steel lifting mechanism.

PUMP—Rothweiler & Co., Seattle, have placed on the market a pump intended for use with steel drums, as described in a leaflet. The device is said to be so constructed that it will pump most liquids, either hot or cold, such as oils, paints, lacquers and cutting compounds.

BALL BEARINGS—Strom Bearings Co., Chicago, has issued illustrated catalog, No. 12, showing single row radial, and double row radial bearings, 200 per cent and 300 per cent angular contact bearings and M.R.C. thrust bearings, with load rating dimensions and data for engineers and draftsmen.

GAS BURNERS—A folder issued by the Costello Engineering Co., Pittsburgh, describes and illustrates the company's raw producer gas burner. The burner is mounted directly over the gas flue. Internal parts are of heat resisting metal. The burner is made in two standard sizes, 12-inch, and 8-inch, rated at 500 and 300 pounds of coal per hour, respectively.

LIGHT AND PAINT—A booklet on the light reflection values of color in paint has been released by the New Jersey Zinc Co., New York. White generally is used in industrial establishments where the greatest amount of light is desired, but there are many instances where color is preferred. A chart illustrates the reflection values of various shades of colors.

NITRIDING—"Essentials of Successful Nitriding" is the subject of Bulletin No. 830 published by the Hevi Duty Electric Co., Milwaukee, manufacturer of electric heat treating furnaces. The bulletin illustrates and describes equipment and discusses nitriding in the light of the company's research in the laboratory and in regular production.

OIL AND GREASE RETAINERS—A new booklet describes the patented, self-contained leather oil seal manufactured by the Chicago Rawhide Mfg. Co., Chicago, and lists the dimensions of the stock sizes made for use with shafts from ½-inch to 12 inches in diameter. Advantages of leather in lubricant seals for motor vehicles, machine tools and other applications are described.

VALVES — Jenkins Bros., New York, have brought out a new line of standard bronze valves described and illustrated in bulletin No. 141. A one-piece screw-over bonnet in combination with a slip-on, stay-on disk holder is said to be an entirely new departure in bronze valve design. The valves are made in globe, angle, cross and check types for all standard services.

WOUND ROTOR INDUCTION MOTORS—A four-page leaflet describing the application and construction of type CW wound rotor induction motors has been published by the Westinghouse Electric & Mfg. Co. These motors have a wide field of usefulness for driving pumps and compressors and for other constant and varying speed, continuous duty services. The leaflet is identified as No. 20,490.